A country that works for all children and young people

An evidence-based plan for upskilling our children and young people for digital futures

Child of the North

N8 RESEARCH PARTNERSHIP

HEALTH EQUITY NORTH

CENTRE FOR YOUNG LIVES

Contents

Please sign our petition if you share our vision for building a better UK that invests in its future (the next generation of children and young people)

Foreword by Anne Longfield and Camilla Kingdon

There are lively and controversial discussions around children and technology taking place in families, schools, and in Government. It is devastating to hear the heartbreaking stories of young people who have lost their lives because of digital bullying, or who have been harmed and abused online. It is right that everyone does everything they can to make sure children's digital experiences are safe, happy, and healthy.

However, as we all know, digital technology and the internet provides vital access to a world of opportunity. It is very much a part of modern childhood – key to friendships, creativity, learning, play, and support. Most children will tell you it's just part of their modern world – none of them know a world where these technologies do not exist.

That's why it is so important to understand how children without access to digital opportunity are being held back. Sometimes, the important focus on improving safety and protecting children from the harms associated with the internet and smartphones, (such as the impact on children's mental health and social development) has meant less attention paid to closing the digital divide and tackling the uneven playing field in the digital world.

Many will be surprised to learn that four in ten children do not have either home broadband or a laptop or desktop computer, and that around 2.4m children do not use the internet at home among households from the lowest socio-economic backgrounds.

During the Covid pandemic, the scale of that digital divide came into sharp focus. One in five children were unable to take part in home-learning because they did not have broadband or access to technology. The Government at the time was slow to intervene, and it was left to forward-thinking schools and trusts to do what they could to improve access.

The pandemic emergency may have passed but many of these challenges still exist as school life has returned to normal. Many schools expect children to complete homework on PCs or tablets at home, but some children do not have the tech or the broadband to be able to participate in this crucial educational activity.

Affordability remains a major barrier to digital inclusion. Over the past year, 1 million people have either cut back or cancelled their internet packages due to financial constraints – many will be families with children. There are also regional disparities compounding these issues – 12% of the population in the North East of England are classified as internet non-users, compared to 7% in London.

This digital divide can have profound implications for children's educational outcomes, social inclusion, and future employment prospects and far too many children are being adversely affected by this digital divide. We know the crucial importance of developing digital skills, and we know that many employers are concerned that millions of workers are under-skilled in the basics of technology. This skills deficit not only holds back individuals but also our economic prosperity. Projections suggest that 5 million workers will be under-skilled in basic digital capabilities by 2030.

We should be concerned that the number of young people taking IT subjects at GCSE has fallen by 40% over the last decade, and that three quarters of young people feel they lack the necessary digital skills to thrive. Given many children and young people are leading the way, curious, and engaged in digital technology, there must be a question about whether IT subjects in school are in tune with children's own aspirations and experiences in the digital world – as well as whether the digital curriculum meets the needs of employers.

This report, the seventh in the Child of the North/ Centre for Young Lives year-long series, looks at the evidence for how best to close the digital divide and empower children to navigate digital content critically and responsibly, and puts forward fresh policy recommendations to the new Government. It examines innovations that are already taking place and suggests new ideas for encouraging equitable access to technology, as well as protecting young people online.

"This digital divide can have profound implications for children's educational outcomes, social inclusion, and future employment prospects."

"The world economy will come to rely on and reward workforces who have the digital skills needed to adapt to change and to innovate."

It begins with a proposal for the establishment of a Minimum Digital Living Standards Framework to narrow the digital divide and encourage more equitable access to education, public services, and economic opportunities.

Minimum Digital Living Standards would ensure that every household has the digital infrastructure they need to fully participate in today's digital world. This could include access to high-speed broadband, a functioning computer or laptop, and essential digital skills training, and could be delivered through subsidies or vouchers to low-income families.

Boosting digital skills in schools requires teachers who are themselves skilled and confident and up to date on digital advancements, and the report recommends digital training packages for teachers and other educational organisations, as well as providing the resources needed by schools to ensure they can train all school staff.

The report calls for an easily accessible platform that offers comprehensive support for digital creativity skills development. A Digital Creativity Skills Commons would encourage partnerships between industry, educational institutions, and cultural organisations as well as building support networks that connect learners with mentors, industry experts, and educational institutions.

This kind of platform could play a crucial role in empowering individuals to explore and develop their digital creativity, leading to a more inclusive and dynamic digital landscape.

In addition, the report showcases forward-thinking initiatives and models of community engagement like Living Well Schools, a programme developed by Bradford Council to transform schools into health-promoting environments and improve the overall wellbeing of children, young people, school staff, and families. Living Well Schools uses the benefits of digital technology to provide a "one stop" online portal where schools can readily discover the relevant available physical and mental health services within their area. Importantly, Living Well Schools supports schools to tackle the digital divide and make certain that all children can benefit from the educational advantages provided through digital technologies.

The report also highlights Impact Gamers, a non-profit community interest company that uses computer game development to engage and empower young people and improve their digital skills. Impact Gamers works closely with schools to integrate ICT into the curriculum and is funded through a combination of small grants and revenue generated from commercial game-making projects. The new Government could and should work with companies such as Impact Gamers to digitally upskill the next generation at pace.

The report also explores the roles and the benefits of educational robots in schools to support learning through interactive and practical exercises, starting in primary schools. Educational robotics has the potential to enhance the learning experience in scientific subjects while fostering healthy peer relationships through teamwork.

The impact of digital technology and the internet on children's lives is already profound. As this report sets out, that impact is only likely to increase with the rapid development of AI. The world economy will come to rely on and reward workforces who have the digital skills needed to adapt to change and to innovate. Future technologies and jobs need skills and experiences sharpened during childhood at school and at home.

The Technology Revolution is predicted to have as much impact on our society as the Industrial Revolution. We must make sure no one is left behind. This report puts forward a strong case for more urgency and creativity about how we close the digital divide and improve access to tech and learning. We need to be much bolder about the role Government, business, the third sector, and the academic community can play in breaking down opportunity barriers and widening access.

If we have a substantial number of young people shut out of the digital world, we can't hope to achieve the new Government's aim of becoming a world-beating economy with a well-trained and well-educated workforce. The time has come to ensure digital technologies are used for good and to explore how these technologies can support the wellbeing of **all children and young people** throughout the UK.

Anne Longfield CBE,
Executive Chair of
the Centre for Young Lives

Dr Camilla Kingdon,
Former President of the
Royal College of Paediatrics
and Child Health

Digital Futures Commission

The Digital Futures Commission (DFC) was established in response to growing concerns about the impact of digital technology on children. The Commission, chaired by **Baroness Beeban Kidron** and led by **Professor Sonia Livingstone**, brought together a wide range of experts, including academics, technology experts, psychologists, and legal scholars, to comprehensively explore the issues around children's digital rights.

This report outlines the evidence for how best to close the digital divide and empower children to navigate digital content critically and responsibly. It is important to highlight from the outset the crucial work led by the DFC as this has laid a solid foundation on which government could and should build.

The DFC was a three-year initiative dedicated to reimagining the digital environment through the lens of children's rights. It sought to ensure that as the digital world evolves, it does so in ways that prioritise and safeguard the wellbeing, rights, and development of children.

The DFC was launched by the 5Rights Foundation in collaboration with university and industry partners. The initiative was pivotal in addressing the often overlooked or insufficiently prioritised needs of children in the rapidly expanding digital landscape.

The foundational premise of the DFC was that the digital world, as it stands, often fails to consider the specific needs and rights of children. The Commission was motivated by the belief that children should not be passive recipients of digital content and services but active participants whose rights and needs must shape the digital environment. The DFC set out to create a framework for digital innovation that not only includes children but actively supports their development, safety, and rights.

The work of the DFC was organised around three key focus areas: play in a digital world, the governance and use of education data, and the development of guidance for digital innovators.

1. Play in a digital world

Play is a fundamental aspect of childhood, crucial for the development of creativity, social skills, and emotional resilience. However, the nature of play is changing as more children spend increasing amounts of time online. The DFC examined how digital platforms and services can either support or hinder opportunities for children to engage in meaningful play.

The Commission's work in this area was driven by the recognition that digital environments often fail to replicate the benefits of traditional, physical play.

For instance, the structure of many digital games and platforms tends to be overly prescriptive, limiting children's ability to explore, create, and engage in "free play", which is essential for their development. The DFC emphasised the need for digital play spaces that allow for creativity, autonomy, and exploration, without the pressures of commercialization or excessive adult control.

One of the key outputs in this area was the "Playful by Design" report, which provided a detailed analysis of how current digital platforms succeed or fail in supporting play. The report offered practical recommendations for how digital services could be redesigned to better support the qualities of free play, which include autonomy, creativity, and social interaction.

2. Use of education data

The use of educational technology (EdTech) has grown rapidly, especially in the wake of the COVID-19 pandemic, which forced many educational institutions to pivot to online learning. This shift has brought with it a significant increase in the collection and processing of children's data. While EdTech offers many potential benefits, including personalised learning and enhanced educational outcomes, it also raises significant concerns regarding privacy, data protection, and the potential for exploitation.

The DFC's work on data focused on developing a framework for the ethical governance of education data. The Commission recognised that children's education data is particularly sensitive and should be handled with the utmost care to avoid misuse or exploitation. The "Blueprint for Education Data" was one of the DFC's major outputs in this area.

This comprehensive document provides guidelines for educators, policymakers, and tech companies on how to manage education data in a way that respects children's rights and supports their educational development.

The DFC was particularly concerned with the lack of transparency in how children's data are collected, stored, and used by both public and private entities. It called for greater accountability and clearer regulations to ensure that data are used in ways that are genuinely in the best interests of children. The blueprint advocated for a rights-based approach to data governance, emphasising that children's privacy should never be compromised for commercial gain.

3. Guidance for innovators

Digital innovation is often driven by technological capabilities and market opportunities, with insufficient attention paid to the ethical implications, especially concerning children. The DFC sought to address this gap by developing a set of guidelines for innovators to ensure that children's rights are considered from the very beginning of the design process.

The "Child Rights by Design" toolkit was a key resource developed by the DFC in this area. It provided practical advice for digital innovators on how to embed children's rights into the design of digital products and services. The toolkit emphasised the importance of anticipating the needs and vulnerabilities of children and incorporating these considerations into every stage of product development.

This guidance was informed by extensive consultations with children, industry stakeholders, and child rights experts. The DFC's approach was not to stifle innovation but to encourage the creation of digital products and services that are both innovative and aligned with the best interests of children. The Commission argued that companies could not only meet their ethical obligations but also create products that are more likely to be trusted and embraced by parents and educators by designing with children in mind.

Policy implications

Throughout its work, the DFC made several key suggestions for policymakers, regulators, industry leaders, and educators:

- Incorporating child rights into digital policy: The DFC urged governments and regulators to embed child rights considerations into all aspects of digital policy and regulation. This includes stricter enforcement of existing regulations, such as the Age-Appropriate Design Code in the UK, and the development of new laws to address emerging challenges.
- Ethical data governance: The DFC called for a robust framework for the ethical governance of children's data, particularly in educational settings. This includes ensuring that data collection is minimised, transparent, and used solely for purposes that benefit children.
- Support for digital play: The Commission suggested that digital platforms and services should be redesigned to better support free play, emphasising the need for environments that allow children to explore, create, and socialise without undue restrictions or commercial pressures.
- Industry responsibility: The DFC highlighted the need for the tech industry to take greater responsibility for the impact of their products on children. This includes adopting the Child Rights by Design principles and working collaboratively with child rights experts to ensure that new technologies enhance rather than undermine children's wellbeing.

These suggestions have guided the recommendations made within this report.

Legacy and future directions

The Digital Futures Commission concluded its work in 2023, but its legacy continues through the establishment of the Digital Futures for Children initiative, a new research centre launched by the 5Rights Foundation in partnership with the London School of Economics and Political Science (LSE). This centre aims to build on the DFC's work by continuing to advocate for children's rights in the digital world and addressing the ongoing challenges posed by rapid technological innovation.

This report is a collaborative programme of work between Child of the North and the Centre for Young Lives.

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A full list of authors and contributors can be found at the end of this report.

A note about language

Children and young people

In this report, CYP is used to refer to children and young people. A "young person" in this context is a person over compulsory school age (the end of the academic year in which they turn 16 years old) and under 25 years old. In keeping with this definition, we use the words "child" and "children" in this report to refer to individuals from birth to the end of compulsory school age.

Schools, nurseries, and educational settings

Please note that this report often uses "schools" as shorthand for "schools, nurseries, and other educational settings such as pupil referral units and special schools". One central message of this report is the need for a "whole system" approach that includes all relevant stakeholders, and this includes all parts of the education system.

About Child of the North

Child of the North is a partnership between the N8 Research Partnership and Health Equity North which aims to build a fairer future for children across the North of England by building a platform for collaboration, high quality research, and policy engagement. @ChildoftheNort1

About the N8 Research Partnership

The N8 Research Partnership is a collaboration of the eight most research-intensive Universities in the North of England: Durham, Lancaster, Leeds, Liverpool, Manchester, Newcastle, Sheffield, and York. Working with partner universities, industry, and society (N8+), the N8 aims to maximise the impact of this research base by promoting collaboration, establishing innovative research capabilities and programmes of national and international prominence, and driving economic growth. www.n8research.org.uk @N8research

Who is the Child of the North?

The "Child of the North" is an archetype (like the "unknown soldier"), representing all the millions of children throughout the UK whose lives are blighted by inequalities. We use the Child of the North as a means of illustrating the inequities that affect children and young people. These inequalities are well captured by the differences in opportunities available to the child growing up in the North of England versus the South. But inequalities are present throughout the UK at both a national and regional level. These inequalities are bad for almost everyone and the future of the UK depends on their urgent eradication. The Child of the North represents every child who deserves a better start to life, regardless of where they live.

About Health Equity North

Health Equity North is a virtual institute focused on place-based solutions to public health problems and health inequalities across the North of England. It brings together world-leading academic expertise, from the Northern Health Science Alliance's members of leading universities and hospitals, to fight health inequalities through research excellence and collaboration. www.healthequitynorth.co.uk @_HENorth

About the Centre for Young Lives

The Centre for Young Lives is a new, dynamic and highly experienced innovation organisation dedicated to improving the lives of children, young people, and families in the UK – particularly the most vulnerable. Led by former Children's Commissioner, Anne Longfield CBE, who has been at the forefront of children's issues for decades, the Centre's agile team is highly skilled, experienced, and regarded. It is already widely known and well respected across government departments, Parliament, local and regional government, academia, the voluntary sector, and national and local media. The Centre wants to see children and young people's futures placed at the heart of policy making, a high priority for Government and at the core of the drive for a future for our country which can be much stronger and more prosperous. www.centreforyounglives.org.uk @CfYoungLives

About the N8+

Collaboration lies at the heart of "Child of The North". The N8 has proved a useful organising structure but the Child of The North vision is to: (i) use the North-South England divide to show the impact of inequity on all children in the UK; (ii) bring together stakeholders from across the UK to build a better country for CYP. One aspiration is to link researchers from across the UK to support evidence-based approaches to policymaking. In particular, there is a desire to unite Higher Education institutes across the North of England so we can address problems in partnership. This report is a testament to the "N8+ vision" with colleagues from the University of Bradford leading its production. This reflects the wider collaboration between the University of Bradford and N8 partners in projects such as "Born in Bradford" and the Wolfson Centre for Applied Health Research.

Quotations

The illustrative quotations throughout the report were taken from both extensive qualitative and consultation work with children, families, and professionals and the Nominet Digital Youth Index report (1). Quotes on p.24 come from three young people who were involved in the #Speakout project. The demographics of these participants were: White British, heterosexual woman, aged 21; White British, heterosexual woman, aged 25; and Pakistani British, heterosexual man, aged 18.

Acknowledgements

We would like to thank the Bradford Priority Education Investment Area and Educational Alliance for Life Chances (and associated DfE colleagues) for their amazing work on addressing inequity and for their support with getting this report off the ground. We would like to thank everyone who participated in the research that is described in this report and would like to particularly highlight the wonderful contributions made by the participants from the Born in Bradford programme, led by Professors Rosie McEachan and John Wright. This work would also not be possible without generous funding from our UK and EU research funding bodies who are an essential part of the system that needs to work together in the best interests of CYP. We would also like to thank the many parents/carers, young people, and professionals who provided valuable insights included in this report.

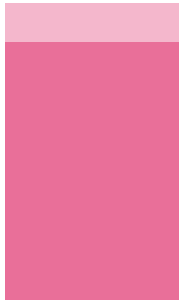
Key insights

2 in 3 parents are concerned about the content their children view online.

3/4 Young people feel they lack the **necessary digital skills** to thrive.

42% Of young people do not have either **broadband or a laptop/desktop** computer.

88% of young people think that digital skills will be **essential to their careers.**

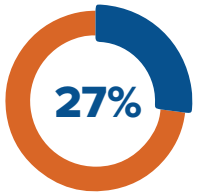


48% **of boys**

42% **of girls**

Have seen **harmful content** on social media and messaging platforms in the last month.

1 in 5 children did not have access to the internet during the pandemic.



Of UK workers say that they **lack the digital skills** required for their job.

The number of young people taking IT subjects at **GCSE has fallen by 40%** over the last decade.

Digital skills shortages **cost the UK**

£63 BILLION

each year.

Have **seen harmful content online** in the last month.

12% **of the North East**

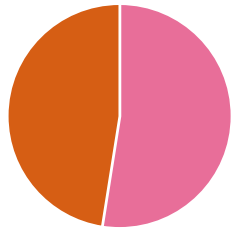
7% **of London**

Are classified as **internet non-users.**

1 MILLION HOUSEHOLDS

Have cut back or cancelled internet packages in the past year due to affordability issues.

Almost **HALF** of young people are **teaching themselves** digital skills.



Defining digital skills & related terminology

It is important to distinguish between the various definitions used throughout this report. Each term encompasses distinct aspects of digital competency and its specific impacts on educational and professional development. By clearly defining each category, educators can develop targeted strategies to teach the necessary skills at each level. Recognising the different levels of digital skills and literacy can also help in designing interventions to bridge the digital divide. Finally, differentiating these skills recognises the subtle but distinct disparities between each and ensures that learners are not only prepared for the current digital landscape but are also equipped to adapt to and innovate future technological advancements.

Basic digital skills

Basic digital skills refer to foundational competencies that enable individuals to perform essential tasks using digital devices. These include the ability to operate a computer or smartphone, navigate the internet, use and send emails, and apply basic software skills that are all critical for accessing educational resources, completing school assignments, and communicating effectively in a digital world. Mastery of these skills lays the groundwork for more advanced digital literacy and helps bridge digital divides, particularly for those from disadvantaged backgrounds.

Essential digital skills

Essential digital skills build upon basic competencies and include more advanced capabilities such as using digital platforms for collaboration, engaging with digital content, managing online safety, and understanding digital rights and responsibilities. Individuals who possess these skills are able to participate fully in educational, social, and economic activities. Essential digital skills are necessary for navigating the complexities of modern digital environments. They empower CYP to collaborate online, critically evaluate digital information, and engage safely and responsibly in digital communities. These skills are vital for academic success and future employment opportunities.

Advanced digital skills

Advanced digital skills encompass higher-level technical abilities required for specialised digital tasks. These include programming, data analysis, digital design and architecture, cybersecurity, and the use of emerging technologies such as artificial intelligence, robotics, and machine learning. For young people, developing advanced digital skills can open pathways to careers in all sectors increasingly reliant on digital expertise (e.g., tech, design, social care, health, etc.). These skills are critical for innovation and competitiveness in the global economy, enabling young individuals to contribute to and thrive in a rapidly evolving digital landscape.

Digital literacy

Digital literacy is the ability to locate, evaluate, produce, and use digital information effectively. Digital literacy presents complexities because it involves technical skills like sending an email or using navigation software, but it also informs social practices on social connectivity platforms and intellectual practices driven by interests and passions such as politics and sustainability. It is essential for academic achievement and informed citizenship and equips CYP with the skills to navigate digital content responsibly, avoid misinformation, and express themselves creatively through various digital platforms.

Digital citizenship

Digital citizenship encompasses the norms of appropriate and responsible behaviours concerning the use of technology and grows with and is shaped by societal values. It includes understanding digital ethics, respecting intellectual property, and engaging positively in online communities. Developing digital citizenship values and skills prepares young people to use technology ethically and responsibly. It promotes respectful online interactions, awareness of digital rights and responsibilities, and the ability to contribute constructively to digital communities.

Digital creativity

Young people engage in varied literacy practices fluidly and given this diversity and complexity, digital literacy has often been framed as plural: digital literacies. Digital creativity resembles digital literacies and involves using digital tools to generate innovative content, solve problems creatively, and express ideas artistically. It includes skills in digital design, architecture, data analysis processing and application, media production, and the use of information visualisation. Digital creativity empowers young people to express themselves and develop unique solutions to problems. It enhances their ability to engage in digital storytelling, multimedia projects, and other creative endeavours, which are increasingly valuable in both educational and professional contexts.

Digital divides

Contemporary digital divides are characterised by exclusion and inequality to basic and advanced digital skills, technologies, hardware, and software. It has become known as digital poverty to represent the challenges of affording to pay for connectivity and devices. Digital divides are an increasing concern because digital connectivity is a daily, if not hourly, necessity and digital poverty exacerbates other forms of poverty. Access to technical resources, skills, training, beliefs, and pedagogical compatibility can effectively decrease digital divides.

Policy recommendations

The UK's digital landscape is an uneven playing field for CYP. Closing contemporary digital divides will take more than simply getting everyone online; we need to empower CYP to navigate digital content critically and responsibly, have a greater awareness of their digital rights, and the opportunity to express themselves creatively in digital spaces. Evidence and case studies featured in this report suggest that many CYP are already making use of digital devices and spaces in a responsible and creative way - but millions of CYP are denied that opportunity through lack of access, resources, and skills development. In order to best prepare our CYP for their digital futures, we encourage the new Government to adopt our three evidence-based recommendations. These recommendations are timely, feasible, and grounded in the extensive CYP-centred research our expert contributors have undertaken across the North of England.

1

Establish a "Minimum Digital Living Standards" framework, including subsidised digital access

Digital divides create significant barriers for equitable access to education, public services, and economic opportunities. Establishing Minimum Digital Living Standards for all people will ensure that every household has the foundational digital infrastructure necessary for effective participation in modern society. A National Minimum Digital Living Standards framework could include basic digital infrastructure such as high-speed broadband, a functioning computer or laptop, and essential digital skills training. The implementation of nation-wide subsidies or vouchers would assist low-income families in obtaining and maintaining broadband services and digital devices. Establishing Minimum Digital Living Standards will reduce these digital divides, enabling equitable access to education, employment, and social services.

2

Enhance digital inclusivity in schools through Continuing Professional Development for educators

Current constraints on teachers' time and the lack of structured support for Continuing Professional Development (CPD) hinder their ability to stay current with digital advancements, affecting the quality of digital education provided to students. Digital training packages for in-service teachers and other educational organisations and networks should be co-designed and continuously updated by multi-academy trusts, local education authorities, and industry experts. Schools also need to be provided with the necessary resources and time allocations to support teachers and other staff in engaging with CPD. In the future, schools will benefit from having a workforce that is adept at utilising digital tools to enhance educational experiences and outcomes.

3

Create a national Digital Creativity Skills Commons, fostering cross-sectional partnerships and network development

Currently, there is no consolidated, easily accessible platform that offers comprehensive support for digital creativity skills development. An open-access, subscription-free Digital Creativity Skills Commons could provide a range of evidence-informed resources, including training materials, funding guidance, and a registry of relevant agencies and charities. The Digital Creativity Skills Commons would encourage partnerships between industry, educational institutions, and cultural organisations through contribution and utilisation, as well as building support networks that connect learners with mentors, industry experts, and educational institutions. In the future, this platform will play a crucial role in empowering individuals to explore and develop their digital creativity, leading to a more inclusive and dynamic digital landscape.

These recommendations offer immense potential for upskilling our children and young people for digital futures and will help the UK benefit from the sustainable economic growth available when the talents of every child can be deployed effectively within the workforce. Whilst there are resource implications, the recommendations do not require unfeasible levels of investment.

Principles

CYP inhabit digital spaces from many different physical environments: both in and out of the classroom; at home and on the move; in both private and public spaces. This report attempts to explore the diversity of experiences that CYP have with digital devices, platforms and spaces, whilst also recognising that the digital landscape we find ourselves in is transforming at a rate far quicker than academics, policymakers and educators can often keep up with. In such a world, preparing CYP for an unpredictable digital future could not be more important.

Our recommendations are based on seven principles and the evidence that underpins the recommendations is laid out within this report. The recommendations are pragmatic in nature and recognise that the UK is in a perilous financial state. These recommendations do not pretend there is a magic wand that will immediately fix the system. Rather, they avoid the trap where the impossibility of perfection prevents change. Further, they provide a platform that would allow us to harness research and scientific evidence to learn what works best for which community – noting that science is one of society's most powerful tools for improving education and wellbeing.

Our seven principles

1 **Putting our children first** –The future of a country depends on a healthy workforce, equipped with the skills needed by the economy and society. Childhood is a critically important period for developing the core skills needed to function within society. Logic thus dictates that the UK must prioritise upskilling CYP for digital futures. This will ensure children have access to the best possible opportunities to succeed academically, emotionally, and socially in a rapidly evolving digital landscape.

2 **Addressing inequity** – Economic stagnation must be reversed to generate wealth and ensure the UK makes the best use of all its assets (i.e., the brilliant young minds located across all our communities). A concerted effort to provide equitable access to digital resources and skills, will narrow the digital divides between different socioeconomic groups, providing all children with the opportunities to participate fully in the digital economy and society. A failure to support all CYP in upskilling for digital futures will entrench inequity and starve the UK of talented individuals within the future workforce.

3 **Adopting place-based approaches** – It is important to recognise the unique challenges faced by different communities and tailor digital initiatives to local contexts. Programmes need to demonstrate how local needs and resources are considered to effectively address specific digital barriers. Place-based approaches ensure that interventions are relevant and impactful, fostering stronger community engagement and outcomes.

4 **Working together effectively across our public services** – Collaborative efforts between various public service sectors, including education, health, and social services are needed to provide CYP with the necessary skills for digital futures. By promoting integrated strategies and cross-sector partnerships, a cohesive approach to tackling digital challenges is possible. Effective collaboration will maximise resource utilisation and ensure consistent support across all areas of public service.

5 **Putting education at the heart of public service delivery** – Schools have a pivotal role in preparing children for a digital future. Enhancing digital literacy and digital skills are fundamental to educational success and overall development. With continuous professional development for teachers and integrating digital creativity and criticality into curricula, digital skills education will be positioned at the core of public service initiatives, ensuring that it drives broader societal progress. By extension, there must be a reimagining of curricula and assessment to reflect new innovations and the emerging, ever-changing digital landscape.

6 **Establishing universities as the "Research and Development" departments for local public services** – Universities play a crucial role in advancing digital education through research and innovation. Partnerships between universities and local public services enables academic research to inform and enhance practical interventions, providing cutting-edge solutions to digital challenges and enriching public service delivery.

7 **Using and sharing information across public service providers effectively** – Effective information sharing among public service providers, such as resources, best practices, and data, is key to addressing digital education comprehensively. By promoting transparency and collaboration in information exchange, the effectiveness of digital initiatives will be enhanced, ensuring that all stakeholders can contribute to and benefit from shared knowledge and innovations.

The evidence

The rapid advancement of digital technology is reshaping the lives of CYP, presenting both unprecedented opportunities and significant challenges. Some causes of digital exclusion are: unaffordable costs of connectivity and devices; lack of training and exposure to digital analytical and technical skills; and machine learning increasingly inviting more passive learning practices. While digital access enhances learning, socialisation, and access to services, a substantial portion of the youth population is left behind due to digital exclusion, which has profound implications for their educational outcomes, social inclusion, and future employment prospects. **Putting our children first,** by addressing these digital divides, is therefore critical to their wellbeing and future success.

A significant proportion of CYP in the UK lack access to adequate digital resources. Indeed, 42% of young people (approximately 6 million) do not have access to either home broadband or a laptop/desktop computer (1). This digital divide is especially pronounced in low-income households and rural areas, where infrastructure limitations and affordability issues exacerbate the problem. During the COVID-19 pandemic, one in five children lacked access to a suitable device for home study, which highlighted the urgent need for comprehensive solutions that address inequity by ensuring equitable access to hybrid learning (2). Beyond access to devices, there is a critical skills gap. 21% of the population (around 11 million people) lack essential digital skills for daily life (3), with 10 million of this group lacking even essential digital skills. Among benefits claimants, 34% have very low digital engagement (based on Lloyds Bank's Index Score, which assesses "Spend", "Interactions", and "Technology" as predictive indicators of digital engagement) – significantly higher than the national average. This skills deficit not only hampers individual potential but also imposes a substantial economic burden, with digital skills shortages costing the UK an estimated £63 billion annually (4). Projections suggest that by 2030, 5 million workers will be under-skilled in basic digital capabilities (5). To **put education at the heart of public service delivery,** there must be a coordinated effort to integrate digital literacy into the educational curriculum from an early age.

Affordability remains a major barrier to digital inclusion. Over the past year, 1 million people have either cut back or cancelled their internet packages due to financial constraints (2). This situation is severe among households from the lowest socioeconomic backgrounds; approximately 2.4 million (21%) do not use the internet at home, and 3.6 million (38%) are classified as narrow users, engaging in a limited range of online activities (2). Regional disparities compound these issues, with 12.2% of the population in the North East of England classified as internet non-users, compared to 7% in London (2). **Adopting place-based approaches** that recognise and address these regional disparities is essential for ensuring that solutions are tailored to the unique needs of different communities.

The impact of digital exclusion extends beyond education and basic services. Digital skills are increasingly essential for future careers, yet nearly 75% of young people feel they lack the necessary skills to thrive (3). This gap is reflected in declining participation in IT subjects at GCSE level, which has dropped by 40% since 2015 (6). Additionally, many young people are curious about emerging technologies like AI, with 53% having used AI chatbots and expressing interest in leveraging AI tools to enhance their lives (7). Given how diverse and habituated digital practices are for CYP, IT subjects do not necessarily speak to their own experiences with digital spaces.

Online experiences, while beneficial, also carry risks. 45% of CYP aged 8-17 have encountered content they found inappropriate or upsetting, with boys more likely than girls to see harmful content (8). Among children eligible for free school meals (FSM), this figure rises to 54%, compared to 40% among their non-FSM peers (8). **Working together effectively across our public services** to provide guidance and safeguard CYP from online harm is crucial for minimising these risks and ensuring a safe digital environment. Online safety is not the only issue; public services, parents and carers, and CYP need to be aware of deception (e.g., fake news) and basic cybersecurity principles (9).

As the digital landscape evolves, addressing contemporary digital divides is paramount. Ensuring equitable access to technology, fostering digital literacy, and protecting young people online requires coordinated efforts from government, industry, and the third sector.

Implementing sustainable, inclusive strategies that address infrastructure, affordability, and skills training is essential for empowering all CYP to participate fully in the digital age. **Making use of universities' expertise in research and innovation,** in partnership with local public services, can support the development and implementation of effective evidence-based solutions.

Further collaboration with universities can help unlock the full potential of digital technology to foster a more connected and equitable society, while also acknowledging that this is a global issue, and that digital exclusion and inequalities in the Global South should also be recognised and explored.

Artificial Intelligence

Artificial Intelligence (AI) is fast becoming a part of everyday life and the educational sector is still grappling with how to navigate an infusion of machine learning and AI in schools and universities (10, 11). As AI technologies become more integrated into various aspects of life, it is crucial to understand their implications to ensure that CYP can navigate these changes critically, effectively, and responsibly.

AI-driven tools are revolutionising educational experiences by offering personalised learning opportunities that adapt to the needs, preferences, and progress of individual students (12). Adaptive learning systems harness AI to tailor educational content, providing personalised feedback and support that enhances understanding and retention. For instance, AI-powered tutors and chatbots can assist with homework and learning queries outside school hours, creating a more supportive and responsive learning environment. These tools can also alleviate administrative burdens on the education workforce, allowing them to dedicate more time to direct student engagement and teaching.

However, the integration of AI in education is not without challenges (13,14). Concerns about data privacy, the potential for algorithmic bias, and the necessity for adequate teacher and pupil training to effectively use these technologies must be addressed. Ensuring responsible and equitable use of AI tools is essential to prevent reinforcing existing inequalities and to complement rather than replace the critical role of human educators.

Children's lives are inextricably affected by AI systems, yet their voices and ideas rarely feature in how these systems are designed or used. For example, AI and related technologies pose ecological threats and, with CYP most susceptible to climate anxiety, there is arguably no way for them to respond to such pressures. Constant extraction from the Earth is needed to feed technological progression; in relation to AI this includes server farms and cheap labour from the Global South to label datasets. The UK National Curriculum also does not offer comprehensive teaching in relation to the climate emergency. In addition to AI, organisations such as Take the Jump show how we need to use older technologies for longer to meet climate targets.

The ESRC Digital Good Network explores children's ideas about what makes a society digitally good versus digitally bad. Asking 250 CYP this very question, children aged 8-12 not only had lots to say on the topic, but they also offered practical solutions by suggesting possible apps in the health, arts, and education sectors. With limited knowledge and experience with AI, participating children produced visual prompts that outlined their innovative ideas and solutions to the encroachment of AI. Similarly, a report by the National Literacy Trust on AI and education (15) foregrounds revealing facts from questionnaire data from 53,169 CYP and 1,228 teachers – such as the percentage of 13- to-18-year-olds who said they had use of generative AI, which increased from two in five (37.1%) in 2023 to three in four (77.1%) in 2024. Equally illuminating is the fact that one in two young people agree that AI helps them with ideas: 52% believe that AI helps them understand things; 39% admit that AI helps them to write; and 23% feel that AI helps them to read. More worrisome is that 20% say that they copy what generative AI tells them and one in five do not check the facts. One of the most revealing facts in the report is that four in five teachers (82%) interviewed agree that students need to be taught how to engage critically with AI tools.

AI is reshaping job markets (16) by creating demand for new skills and professions. Acquiring AI-related competencies can open pathways to careers in fields like data science, machine learning, and robotics (17). Educational programmes that incorporate AI training are crucial in equipping students with the knowledge needed to thrive in an AI-driven economy. However, the rapid pace of AI development necessitates continuous curriculum change and ongoing professional development for educators. In terms of addressing inequity, there is also a need to ensure that access to AI education is inclusive, particularly for students from disadvantaged backgrounds, to prevent widening the digital skills gap.

> "If I couldn't keep in touch through social media, it would be very boring, and I would feel quite lonely."
>
> – Young person

AI may be able to influence social interaction and wellbeing by providing tools that enhance connectivity and support mental health (18). AI-driven platforms could facilitate virtual social interactions and create opportunities for engagement within online communities, breaking down geographical and social barriers. In mental health, AI applications, such as chatbots, offer immediate support and resources for those experiencing stress or anxiety, complementing traditional mental health services (19,20). Yet, these benefits come with concerns regarding the quality of AI-mediated interactions, the reliability of AI-driven assessments, and the potential misuse of personal data. Policymakers and educators must build foundations for responsible and ethical innovation with AI (e.g., preventing unregulated advice to CYP concerning sensitive topics like mental health). Designing AI tools for social and mental health purposes must prioritise ethical considerations and user privacy to ensure that they contribute positively to CYP's wellbeing.

In terms of **putting education at the heart of public service delivery,** integrating AI education into school curricula is essential for enhancing digital literacy and understanding the ethical implications of AI (21,22). Teaching students, parents, and carers about AI's functionalities and applications empowers them to navigate the digital landscape more effectively, fostering critical thinking skills to evaluate the benefits and risks of AI technologies (23). This educational focus prepares CYP to make informed decisions about their interactions with AI and could equip them to engage responsibly with these tools.

Privacy and security are additional areas where AI plays a pivotal role. AI technologies can enhance online safety by detecting and preventing cyber threats, safeguarding personal information, and creating secure digital environments. For CYP and their digital citizenships, these measures protect against risks such as cyberbullying, identity theft, and exposure to harmful content. However, the use of AI for security purposes must be balanced with respecting individual privacy. There is a risk that AI surveillance tools could infringe on personal freedoms or be used disproportionately (24). Transparency and accountability in deploying AI security measures are crucial to maintaining trust and protecting civil liberties.

By fostering an environment where AI is used thoughtfully and ethically, we can support a generation that is well-prepared to thrive in an increasingly digital world. This approach will ensure that the benefits of AI are maximised while mitigating potential harms, creating a balanced and inclusive digital future for all CYP.

Inclusive and equitable quality education: The need to digitally upskill teachers

In our increasingly hyperconnected world, education, communication, and employment are facilitated by interactive, mobile, and online platforms. These platforms enable rapid production and dissemination of text, media, and multimodal designs (25), often augmented by non-human agents such as chatbots and algorithm-based deep-learning networks. With advancements in technologies like quantum computing, the necessity for digital upskilling becomes even more pressing. **Putting our CYP first** requires ensuring that teachers are well-equipped to guide students through these digital landscapes.

Ensuring an inclusive and equitable quality of education for all necessitates targeted and continuous digital upskilling of teachers. This upskilling must address key areas such as automation, immersive technologies, and sustainability, equipping education leaders and teachers to integrate new technologies into their pedagogy to enhance learning experiences and prepare students for future technological landscapes. Additionally, educators must understand how to utilise algorithms and data analytics effectively to make informed decisions that benefit student learning and outcomes (26). As digital tools become more pervasive, navigating the ethical implications of technology use is critical, requiring teachers to foster a safe and responsible digital environment for students (27).

While equipment and connectivity are often cited as primary barriers to digital inclusion (28), other intersecting factors include gender, socioeconomic status, cultural background, and geographic location. A study focusing on Scotland found that, despite improvements in digital inclusivity since 2020, students in the most deprived schools remain less likely to engage with digital learning platforms and tools adopted by their schools (29). Adopting **place-based approaches** to tailor educational strategies to local contexts can help address these disparities. Rather than putting the burden of digital capacity building solely on teachers, there is a need for public services, educators, and CYP to be supported in building their confidence and criticality with digital texts, spaces, and platforms.

Digital tools can support diverse student groups in engaging with and participating in classroom activities, but only if teachers provide appropriate guidance and support (30). Evidence from the OECD (Organisation for Economic Co-operation and Development) countries indicates that teachers, although crucial in promoting pedagogical designs that enhance learning for diverse groups, often feel underprepared for these responsibilities (31). CPD and training opportunities on digital inclusion and diversity are essential to enhance teachers' capacity to integrate technology effectively into their teaching (32), with the caveat of being wary of commercial products as sole providers.

To bridge digital divides and ensure equitable access to quality education, investing in the digital upskilling of teachers is imperative. This investment will enable educators to harness the potential of digital tools, address emerging challenges, and provide a more inclusive and effective learning experience for all students. **Working together effectively across our public services** will ensure that educational initiatives are supported by a network of resources and expertise, enhancing their impact and sustainability.

> "There should be more safeguarding and wellbeing."
>
> – Focus group participant

Increases in screen use among children and young people

The COVID-19 pandemic and subsequent lockdowns significantly increased screen use among CYP and adults, a trend that has persisted post-lockdown (33). Studies indicate a sustained change in societal behaviour, with screen time levels remaining higher than pre-pandemic norms. This increase is supported by the UK Government's Digital Strategy, promoting digital technology use, and the commercial sector's development and marketing of new digital tools.

Screens offer numerous benefits, facilitating convenience, accessibility, and digital literacy for CYP (34). They enable CYP to engage in independent and creative learning at home, explore new interests, and maintain social connections (35). The ability to connect, socialise, and share with others through screens transcends traditional geographical and social boundaries, enhancing CYP's capacity to interact and learn (36). Within the home, shared screen time fosters bonding between family members, allowing parents, carers, and siblings to engage younger children through collaborative activities and discussions (37). **Putting our children first** involves ensuring that screen use promotes their development and wellbeing, rather than hindering it.

However, access to the benefits of screen use is not evenly distributed across society. Disparities exist, particularly among ethnic minorities, low-income families, and disabled people (38). Screen use also brings potential negative impacts (39). Many parents express concerns over their children's screen time and its cumulative effects (40). Prolonged screen use can lead to physical symptoms such as headaches, eyestrain, and tiredness, as well as behavioural issues like inactivity, mood swings, and difficulty concentrating (41,42). These concerns are particularly relevant as educational settings increasingly rely on screens to deliver content, further increasing CYP's screen time (43). CYP often struggle with prolonged screen use for schoolwork, especially on smaller devices (44). **Putting education at the heart of public service delivery** requires those who create educational content and delivery methods to consider these impacts and strive to mitigate them.

> "Different types of sites moderate different things."
>
> – Focus group participant

Moreover, screen use in isolation, such as in a child's bedroom (45), can lead to a sense of disconnection from reality and strained relationships with family members (46). Conflicts over screen time are common, with parents and carers finding it challenging to regulate and supervise older children's behaviours (47), and disputes often arising among peers during online interactions (48). Late-night screen use can disrupt sleep patterns, further affecting health and wellbeing (49). Content viewed on screens also poses risks. Parents are concerned about children encountering harmful or inappropriate material (36), including violence, sexualised images, and misleading information (50). The potential for exposure to such content is heightened when children use screens for schoolwork, as they may be distracted by ads, games, and social media (51). Unsupervised screen use, especially when parents are occupied with other responsibilities, increases these risks (52). **Using and sharing information across public service providers** effectively can help create better safeguards and resources for parents and carers in managing these risks.

Continued...

While screens are integral to modern life, providing entertainment, communication, and educational opportunities, managing screen use remains a complex issue. Parents and carers recognise the benefits of a digital society but also express concerns about the implications of excessive screen use. Their experiences suggest that while the positive impacts of screen time are evident, negative effects also occur with some regularity. There is a clear need for comprehensive guidance from the government and relevant professionals to help manage screen time effectively and mitigate potential harms. **Working together effectively across our public services** – many of whom already provide CYP guides for "staying safe online" in Northern towns and cities such as Bradford and Barnsley – will be crucial to providing consistent support and advice to families navigating these challenges.

"Anonymisation means people often say things that they wouldn't say to your face... judging people and hurtful comments are common."

– Focus group participant

Online sexual and gender-based abuse, cyberbullying, and harassment

Digital technologies and social media platforms, while fostering positive social connections, also facilitate various forms of online harm, including sexual- and gender-based abuse, cyberbullying, and harassment (53). These harmful behaviours among CYP manifest in disturbing practices such as the non-consensual sharing of sexual images, "cyberflashing", deepfakes, misogynistic abuse, harassment, and online stalking (54,55). Families of CYP are understandably concerned about their children's online safety, and actively seek support and guidance to help them to navigate these challenges safely.

An Ofsted review in 2021 (55), involving interviews with 900 students across England, revealed that harmful sexual behaviours are often normalised among youth. 90% of girls reported receiving unsolicited sexually explicit pictures or videos online either frequently or occasionally, highlighting the pervasive nature of these abuses. Further research indicates that young women frequently receive unsolicited explicit images, which they have come to accept as a norm rather than recognising it as harassment (56).

Cyberbullying, affecting between 6-25% of CYP in the UK (57), occurs through various digital media, including email, social media, text messaging, and gaming platforms, involving aggressive behaviours intended to harm and often featuring repetitive actions and power imbalances (58,59). This includes trolling, social exclusion, and the use of aggressive or violent language, as well as sexual- and gender-based harassment (60).

The emotional and psychological impacts of cyberbullying and online harassment are profound, causing distress, anxiety, loneliness, depression, suicidal thoughts, social exclusion, and self-harm (58,61,62). Ofsted's 2021 investigation underscored the epidemic proportions of sexual and gender-based harassment in English schools, with disproportionate effects on girls and LGBTQ+ students (55).

The non-consensual sharing of intimate photos and recordings to gain social status among peers often reflects harmful gender norms that equate masculinity with sexual conquest, contributing to a culture of misogyny and online abuse (63–65). The rise of misogynistic influencers like Andrew Tate has intensified concerns about the spread of gendered disinformation, reinforcing harmful norms that affect how CYP interact with one another (66–70). **Addressing inequity** in how these issues disproportionately affect CYP from different genders and social groups is essential for creating a safer digital environment.

Schools and educational institutions play a critical role in addressing these issues through effective Relationships, Sex, and Health Education (RSHE) (71). However, current approaches often lack consistency and comprehensiveness (72,73), especially in integrating digital literacy with traditional sex education (74). There is a pressing need for early intervention and consistent educational programs that provide a holistic approach to these complex issues, starting from a young age and continuing through adolescence. **Putting education at the heart of public service delivery** means integrating these educational initiatives into the broader public service framework to ensure they are supported and effective.

Recent UK-based initiatives have sought to address these challenges. Comprehensive resources like the Online Sexual Harassment guidance from the School of Sexuality (75) and the #Men4Change toolkit (76) are designed to both improve CYP's understanding of harmful gender norms and online harassment, including sexual- and gender-based forms; and equip them with the skills to navigate digital spaces safely and responsibly. Such tools are essential for fostering critical awareness and proactive engagement against sexual and gender-based violence. **Adopting place-based approaches** is also of vital importance here, as schools and other local organisations and authorities have an essential role to play in ensuring digital safeguarding concerns are addressed effectively with both CYP and their parents/carers.

"Bullying gives them empowerment and makes them feel something that is not reality."

– Focus group participant

As digital interactions become increasingly integral to everyday life, addressing both the benefits and risks of online engagement is crucial. Educating CYP about the dangers of online harms is important, but it needs to be complemented by educating CYP about recognising potential dangers early enough and reporting them. Additionally, barriers to reporting, including online harassment, cyberbullying and sexual- and gender-based abuse, need to be addressed – while simultaneously promoting safe online practices. These measures are essential for creating a supportive and healthy digital environment (76,77). This comprehensive approach will help mitigate these risks and ensure that CYP can navigate the digital world safely and responsibly.

Barriers to digital creativity

Digital creativity is essential for nurturing the potential of digital tools, methods, and practices, forming the cornerstone of our future creative and cultural economy. The ability of CYP to learn new creative skills, such as coding, and responsibly harness the benefits of technologies like Generative AI, is critical to their future working lives and wellbeing. However, significant barriers rooted in access to resources, training, and deep-seated inequities within UK society hinder this potential.

The UNICEF Digital Education for Every Child report (78) emphasises that essential digital skills are a right for all children, vital for building creative, healthy, and sustainable societies. Yet, achieving this vision is impeded by several barriers. Limited access to devices and the internet remains a significant challenge, with many CYP lacking the necessary tools for digital engagement due to economic constraints (see the work of the Digital Poverty Alliance). The increasing costs associated with subscriptions to Generative AI tools further exacerbate this issue, necessitating greater funding and support.

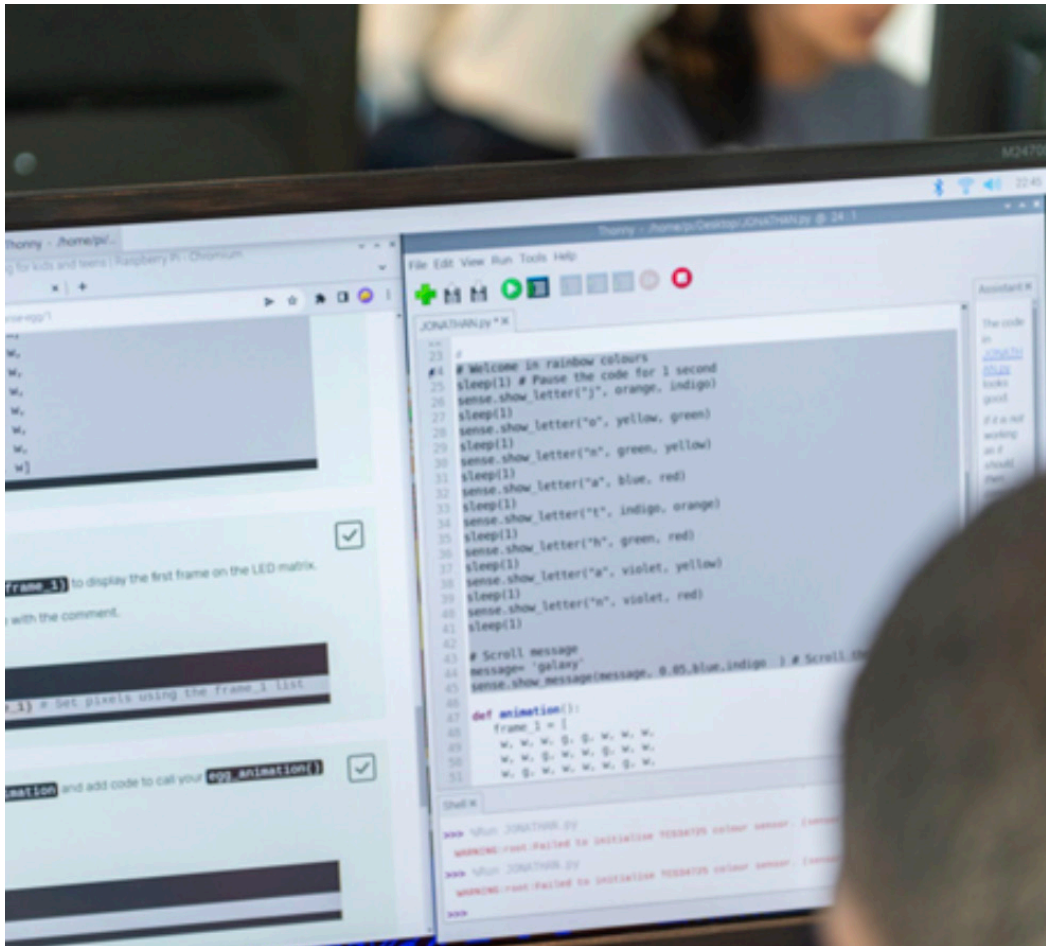
There is also an uneven provision of educational resources across regions and institutions, which must be urgently addressed and could be done so via revisions to the National Curriculum to include comprehensive and equitable digital literacy and creative skill development. **Adopting place-based approaches** can help tailor these educational resources to the unique needs of different communities, ensuring that all CYP have the opportunity to develop digital skills.

Embedding digital and creative literacies within education and ongoing workplace training requires significant investment and policy backing, which is crucial for equipping CYP with competencies needed for the evolving digital landscape. **Making use of universities' expertise in research and innovation**, in partnership with local public services and other educational organisations, can support the development and implementation of effective educational and training programs.

Overcoming societal attitudes that view digital skills through a techno-centric lens involves shifting towards a perspective that values creativity, enhances language accessibility, and promotes comprehensive digital literacy training. Addressing these barriers requires a multi-faceted approach involving various stakeholders. Agencies, charities, and tech companies are actively working to improve digital accessibility and creativity. Initiatives like Digital Makers, the Raspberry Pi Foundation, and Future Transformation exemplify effective collaborative efforts at local and regional levels, as explored further in the forthcoming “Innovative approaches trialled in the real world” section. These organisations demonstrate that joined-up strategies can significantly impact digital engagement and creativity in targeted communities.

The challenge now lies in scaling these efforts nationally – integrating education, resources, and opportunities comprehensively. Crucial reforms include overhauling curriculum design, enhancing resourcing, and providing robust teacher training in basic and essential digital skills. Additionally, providing broader societal opportunities for digital upskilling and increasing digital accessibility are essential. JISC's national Digital Capabilities scheme at the university level and platforms like LinkedIn Learning for CPD represent positive steps towards addressing these needs for those with access to these resources.

In conclusion, while the potential for digital creativity is immense, overcoming barriers related to access, education, and societal attitudes is imperative. By adopting a holistic and inclusive approach, the UK can unlock the full creative potential of its young population, fostering a digitally literate, innovative, and equitable society. **Using and sharing information across public service providers effectively** will further support these efforts, ensuring that resources and opportunities reach those who need them most.



Innovative approaches trialled in the real world

1

Living Well Schools

Living Well Schools is a forward-thinking initiative developed by Bradford Council to transform schools into health-promoting environments. The initiative is underpinned by a recognition that **inequity** drives many of the public health issues playing out across the Bradford District. *Living Well Schools* therefore aims to increase equity across a range of domains - including the **digital divide.**

The vision of *Living Well Schools* is to improve the health and wellbeing of children and young people, and it recognises the importance of working with and through schools to improve public health. *Living Well Schools* uses the benefits of digital technology to help schools access a wealth of online resources. The *Living Well Schools* programme uses technology to make it easier for schools to incorporate accurate evidence-based health messaging and provide support that is tailored for the community served by the school. The objective of the programme is to promote the overall wellbeing of children, young people, staff, and families.

The programme was born from the need to streamline the integration of health and wellbeing resources in educational settings. The programme was set up after a fundamental challenge was identified where school leaders struggled with understanding, prioritising, and navigating the myriad health and wellbeing service resources available to them.

The goal of *Living Well Schools* is to use the benefits of digital technology to simplify life for school staff by making a wealth of resources available online, making it easier for schools to support the needs of their children and young people.

The essence of *Living Well Schools* lies in providing tailored support to schools. The programme begins with a comprehensive “health check” conducted in collaboration with each school. This process utilises Living Well’s bespoke, evidence-based **digital profiling tool** to assess the school's needs and priorities across four critical areas: physical activity, nutrition, mental wellbeing, and poverty. The programme transitions into a **customised support framework** once the needs and priorities are identified. The digital platform connects schools with a diverse range of health and wellbeing services and resources tailored to their specific contexts.

One of the key pillars of *Living Well Schools* lies around reducing classroom inequalities by **addressing the digital divide**. It is recognised that CYP are at a disadvantage without access to a laptop or phone, as education continues to embrace technology. Moreover, the evidence is clear – education is one of the most powerful weapons in the fight against physical and mental ill health (e.g., the close relationship between literacy and ‘health literacy’).

Living Well Schools collaborates with key local partners – such as the Digital Inclusion Programme – to bridge digital skill gaps across the district, ensuring that CYP and families in need can access the necessary technology and skills to engage in the digital world. The programme involves collaboration from across the district in the form of a working group and has contributed to a number of initiatives, including a new Digital Inclusion Officer able to support schools and families in accessing essential technologies.

One distinctive feature of *Living Well Schools*, compared to other health-focused school programmes, is its emphasis on poverty (see our recent report on child poverty). Living Well actively supports schools in recognising and addressing the impacts of poverty on the educational experience, with the digital divide being one of the ways in which poverty creates ill health. The Living Well approach aims to mitigate the adverse effects of social inequality on health and education, ensuring that all children, irrespective of socioeconomic background, have equitable opportunities to succeed.

The programme's foundation is evidence-based and strategically guided by an active steering group chaired by the Portfolio holder for CYP in Bradford Council. This group comprises school leaders, commissioning colleagues, service leads, researchers, and policy makers, which ensures that the programme adapts to the evolving needs of stakeholders while maintaining accountability. Collaboration is a cornerstone of *Living Well Schools*, fostering partnerships between schools, health services, and the third sector. This collaborative approach not only enhances the effectiveness and sustainability of the programme, but also strengthens the connections within the district, making the support available to each school reflective of their unique context.

As *Living Well Schools* expands and deepens its reach across the district, the intelligence gathered from the programme highlights trends and influences future funding and commissioning to meet the schools' needs more effectively. Upcoming developments include the provision of an online platform for schools to demonstrate progress against Ofsted outcomes. This platform will incorporate pupil voice and school survey data into the health check process, allowing for a more tailored suite of resources that align with the students’ needs.

Living Well Schools exemplifies a holistic approach to health improvement within educational settings that frames the digital divide as a public health problem. The programme aims to develop healthy schools, nurture healthy minds, and build bright futures for all CYP in the Bradford District by fostering a joined-up approach that promotes equity and removes the digital divide.

Living Well Schools is creating healthier environments for CYP, and this includes ensuring that every child has access to the necessary technological resources and support to thrive academically and personally in an increasingly digital world.

2

#Speakout: tackling online harassment in student communities

"My friends were sharing sexual pictures of girls from our class... without their permission... and a lot of the boys will just come around watching it even though everyone knew it was wrong, it's just that... when you've got other lads watching it with you, it's like **it makes you feel comfortable doing it."**

– Research participant

The #Speakout project (2017-2019) was developed in response to the Universities UK's (UUK) 2016 Changing the Culture report, which highlighted the rising levels of online harassment on UK university campuses and the urgent need for evidence-based strategies to combat this issue. The project was designed to create a youth-informed campaign and educational interventions to address online harassment and promote safer digital spaces for students. Whilst #Speakout worked with university students rather than children, the project provides a great example of how young users of social media can benefit from a positive and active intervention.

The #Speakout project initially focused on the University of Liverpool campus. Research conducted in 2018 involved a benchmark survey of 795 students and 15 interviews, revealing that harassment was prevalent and often seen as normative. Over 50% of students believed abusive comments were likely in peer interactions, 21.9% reported experiencing online harassment, and women were 7.9% more likely than men to encounter sexual-based harassment. Notably, 70.9% of transgender students experienced online harassment, suggesting a significantly higher risk compared to their cisgender counterparts (63). The research also found a relatively low willingness among students to report gendered online harassment, particularly abuse directed at women (63).

Building on these findings, #Speakout developed several interventions to address online harassment, focusing on increasing awareness, reporting, and active intervention. A key initiative was the creation of a centralised information hub on the university website, which raised awareness about institutional policies, reporting procedures, and available support services. This hub made it easier for students and staff to access information on how to tackle online harassment.

The project also launched a student-led anti-harassment campaign, co-developed with the Liverpool Guild of Students. This campaign promoted an active bystander approach, encouraging students to call out harassment, including online misogyny, within their peer groups. This approach aimed to empower students to recognise and challenge inappropriate behaviours.

To further support these efforts, the project introduced active bystander intervention training, informed by the research findings. This training, delivered to over 2500 students, equipped participants with the skills needed to safely intervene when they observed online harassment among their peers. Additionally, a new online training module, "Developing a Positive Online Presence", was created to help students build constructive digital footprints and recognise online harms. This module provided guidance on navigating online spaces safely and maintaining a positive digital presence.

The impact of #Speakout has extended beyond the University of Liverpool. Universities UK recognised the project's evidence-based interventions as best practice, and the project's training module has been adapted by institutions such as the University of Manchester and the University of Leicester into their student programmes. Merseyside Police also adopted the module, revising their Safer Schools Programme to focus on empowering students to recognise and navigate online harms rather than solely identifying misconduct (63).

Follow-up research indicated a positive shift in students' willingness to report online harassment. A campus-wide survey of 849 respondents showed increased awareness and readiness to report various forms of harassment to university authorities or the student guild. This suggests that #Speakout successfully raised critical awareness and encouraged proactive responses to online harassment, contributing to safer and more supportive digital environments for students.

By empowering students to "speak out" against online harassment and fostering a culture of accountability, #Speakout has significantly influenced how educational institutions approach and manage online harassment. Its innovative, evidence-based interventions offer a valuable framework for other educational institutions seeking to tackle similar issues, demonstrating the importance of collaborative, informed, and proactive strategies in creating safer online communities for CYP.

"I post pictures of my cats on Instagram and stuff and you'll get a message from someone with an **explicit picture from guys and I never asked for that."**

– Research participant

"I know a lot of people like literally just post lots of pictures of themselves... I don't really post anything anymore... **because I've had like weird messages from people before in the past..."**

– Research participant

3

Impact Gamers

"It's made a difference in how comfortable I am in working as a team. **I usually only ever work independently but now I'm working as a team."**

– Pupil

Impact Gamers C.I.C is a BAFTA-winning non-profit community interest company based in Bradford, dedicated to using computer game development as a means to engage and empower young people. Established seven years ago in response to the lack of free extracurricular activities, social isolation among youth, and growing digital divides, Impact Gamers provides a crucial service by offering free after-school sessions in game coding. These sessions are tailored for CYP aged 8-16 and focus not only on developing IT skills but also on building confidence, self-esteem, and social skills.

Operating in one of the most deprived areas in England, Impact Gamers runs its activities in a community ranked in the bottom 2% for deprivation. The organisation offers a variety of programmes, including lessons and workshops in schools and community centres, regular after-school groups, and mentoring sessions. These programmes are designed to support and develop young people and their families by addressing the digital skills gap and promoting educational and personal growth.

The core mission of Impact Gamers is to teach foundational digital skills that are often overlooked in standard educational settings. This focus is particularly relevant for today's generation of CYP, who are frequently adept with mobile and tablet devices but lack proficiency in essential computer skills such as keyboard and mouse use, operating systems, and file management. The National Curriculum for Computing at Key Stages 1 and 2 emphasises learning algorithms and debugging but does not ensure that students have the basic computer literacy necessary to build on these skills. Impact Gamers addresses this gap through its innovative educational software, Digitool, which is being developed to teach these foundational skills.

A notable example of Impact Gamers' successful partnership is with Bowling Park Primary School, where the number of laptops increased from fewer than 30 to over 300 due to COVID-19 grants. This significant increase highlights the existing gap in IT integration within the curriculum and the need for practical exposure to computer use beyond mobile and tablet devices. Impact Gamers works closely with schools like Bowling Park to integrate IT into the curriculum, providing students with hands-on experience that enhances their digital literacy and prepares them for future educational challenges.

Impact Gamers' approach is funded through a combination of small grants and revenue generated from commercial game-making projects. This financial model not only supports their free community programmes but also contributes to the sustainability of the organisation. The planned completion of the Digitool software product aims to provide a steady income stream, ensuring the continued delivery of their community-focused activities.

The organisation has witnessed significant transformations, with young participants who initially struggled with basic computer use quickly learning to navigate complex menu systems and plan game development projects. Within a year, many of these young people progress to a level where they can contribute to Impact Gamers' commercial work. Parents and carers consistently report increased confidence and self-esteem in their children, attributing these changes to the supportive and engaging environment provided by Impact Gamers.

Impact Gamers exemplifies a successful model of community engagement and digital education. By addressing the digital divide and providing essential skills training, the organisation empowers young people in one of England's most deprived areas, equipping them with the tools and confidence to thrive in an increasingly digital world. Their commitment to fostering educational and personal growth through innovative digital learning initiatives demonstrates the transformative potential of combining technology and community support and demonstrates a model of a community-driven organisation.

"**What I enjoy is, you don't feel left out by the staff.** You call them, then they just come. In some places they don't come straight away and then you're there waiting with your hand up."

– Pupil

"**Impact Gamers helps build up my resilience a lot more,** which is something I don't really find it easy to do."

– Pupil

4

The White Rose Centre for Inclusive Computing (WRCIC)

The White Rose Centre for Inclusive Computing (WRCIC) was established to tackle the significant lack of diversity in the tech sector within Yorkshire. Recognising that the future economy will be increasingly driven by digital technology, the WRCIC emphasises that innovation and growth depend on a broad range of lived experiences, perspectives, and backgrounds, as underscored by the McKinsey Diversity Matters report.

Diversity challenges in computing often begin in school, where gender imbalances are particularly stark. In 2023, only 12% of Computing A-Level students in Yorkshire were girls, which is 3% below the national average. Digital poverty exacerbates these disparities, as children without access to computing resources at home face compounded challenges, continuing through higher education and into the tech workforce. Stereotypes portraying computing as a solitary, highly technical field further discourage participation from diverse groups, reinforcing these imbalances.

The WRCIC is a collaborative initiative involving the Universities of Sheffield, Leeds, and York, alongside STEM Learning and its National Centre for Computing Education. This consortium leverages the research and teaching strengths of the universities' computing departments, as well as their public engagement teams, to challenge narrow perceptions of computer science and demonstrate its broad societal impact. For example, researchers at these universities are using AI to improve communication for people with speech impairments, investigating the effects of interactive media on society, creating persuasive and educational technologies, developing smart robots to assist individuals with limited mobility, designing user interfaces for remote surgeries, and participating in cybersecurity awareness initiatives to prevent online harm.

The WRCIC supports various UK initiatives aimed at enhancing inclusion in the tech sector. STEM Learning's National Centre for Computing Education runs the I-Belong programme, a flagship campaign to change girls' perceptions of computing. The WRCIC amplifies these efforts by consolidating resources across Yorkshire, using diverse students and leading researchers as role models, and showcasing state-of-the-art facilities and infrastructure. This approach aims to reach a wider audience and demonstrate the dynamic and multidisciplinary nature of computing.

A key focus of the WRCIC is shifting mindsets within the Yorkshire region. By pooling resources and expertise, the WRCIC seeks to engage groups of young people who might not traditionally view higher education or tech careers as accessible or attractive. The initiative strives to break down negative stereotypes and present computing as a vibrant and multidisciplinary option. The complementary expertise, facilities, and role models within the WRCIC highlight the true nature of computing and its potential for positive impact.

To this end, the WRCIC collaborates with a wide range of stakeholders to promote diversity in computing. For instance, it works with local councils, universities, charities, and companies to consolidate efforts and enhance the visibility of computing careers. The multidisciplinary research conducted by the WRCIC partners contrasts sharply with the narrow stereotypes of computer science roles, offering a more inclusive and engaging vision of the field.

The WRCIC's initiatives are designed to inspire young people by demonstrating the tangible benefits and societal contributions of computing. The centre aims to engage those who may not have considered a tech career by presenting it as an inclusive and impactful path. By showcasing the real-world applications of computing, such as AI in communication or robotics in healthcare, the WRCIC aims to attract a diverse range of students and professionals to the tech sector.

Overall, the WRCIC is committed to transforming the perception and accessibility of computing education and careers. By fostering a diverse and inclusive environment, the WRCIC contributes to a more equitable and innovative tech sector, ensuring that a broader range of voices and perspectives are represented in the digital economy of the future.

5

Robots in the classroom in the North of England

The integration of educational robotics into the classroom represents a significant advancement in fostering both academic learning and social-emotional development among students. With limited access to mental health support posing a risk to the development of positive peer relationships and overall learning experiences in schools, the use of digital and robotic technologies is set to increase for future generations. Supporting teachers and schools in adopting these technologies is crucial for designing innovative approaches that facilitate both the learning of new digital skills and the social and emotional development of CYP.

Educational robots are affordable machines designed to support learning through interactive and practical exercises. Schools in the North of England are developing scientific competencies using these tools. Educational robotics has the potential to enhance the learning experience in scientific subjects while fostering healthy peer relationships through teamwork. Positive peer relationships are known to boost achievement and engagement in schools, and educational robots can help train the social-emotional skills that increase students' sense of belonging in an inclusive and supportive environment, thereby reducing social isolation.

Participation in educational robotics classes lasting 5-8 months promote social skills and enhance social relationships among teenagers compared to regular computer science courses. The positive emotional impact of working with robotics could protect against school dropout and reduce the risk of antisocial behaviour among peers, creating a safer and more conducive environment for learning and digital citizenship.

Educational robotics also proves beneficial for teachers working with children with special educational needs and disabilities (SEND). The positive impact of educational robotics extends beyond a specific subset of students, supporting diverse learning needs and enhancing educational outcomes for all students. This inclusive approach ensures that the benefits of educational robotics are accessible to a broad range of learners.

Supporting teachers in adopting affordable technologies like educational robots and guiding them through this educational shift is essential to preparing students for a digital future. The traditional lecture-based model is often less engaging than a laboratory approach that encourages children to learn, plan, communicate, act independently and responsibly, solve problems, identify connections, and interpret information. Designing new classrooms that integrate technology can enhance learning, creativity, and collaboration among students.

To maximise the benefits of educational robotics, it is vital to train teachers in designing activities that align with the national curriculum while also developing students' socio-emotional skills. This dual focus will not only upgrade teaching delivery but also create a positive classroom environment that promotes student wellbeing.

Parliamentary inquiries have recommended that the Government finance educational robotics to inspire and educate future engineers. Recent reports have outlined the opportunities that education in technology can offer. The impact of educational robotics is not limited to a single curriculum area; it can help introduce students to a variety of subjects, including music, science, mathematics, geography, critical thinking, and general technology. As artificial and virtual agents become more prevalent in society, it is increasingly important to equip future adults with the social and emotional intelligence needed to navigate these technologies effectively.

Teaching students how to utilise educational robotics will significantly impact their future wellbeing. The integration of digital technologies into education and social contexts raises important ethical, legal, and social concerns. Educational robotics serves as a powerful tool for discussing these issues with primary (79) and secondary pupils, helping to define the boundaries of human responsibility and machine autonomy. As interaction with autonomous technology expands into areas like artificial intelligence, engineering, education, and social sciences, supporting teachers in incorporating educational robotics activities into the national curriculum will enable the exploration of innovative methods to achieve the goals of digital education and socio-emotional skill development for future generations.

6

NCCE: West Yorkshire Computing Hub

The West Yorkshire Computing Hub, as part of the DfE-funded National Centre for Computing Education (NCCE), is helping to tackle a critical challenge in the education sector nation-wide: the recruitment and retention of teachers skilled in computer science and digital areas. Teachers face significant constraints, including time pressures, limited access to key digital skills and knowledge, and the need to understand the impact and evaluation of CPD. These constraints are exacerbated by the demanding nature of their work, which makes it difficult for them to participate in CPD outside of their busy schedules.

Schools often struggle to balance multiple strategic objectives, and as a result, computer science and digital skills can be deprioritised. This leads to a situation where many schools are unable to allocate time or resources for staff development in these areas, potentially leaving students at a disadvantage. Despite these challenges, the West Yorkshire Computing Hub has been working diligently to develop and upskill teachers across the Bradford, Kirklees, and Calderdale regions, aiming to improve the overall standard of computing education within the region as part of the NCCE's national strategy.

The Hub's approach to enhancing computing education includes a comprehensive range of subject-specific CPD opportunities, offered through face-to-face, remote, and online sessions. Over the contract period, more than 110 teachers have been trained to deliver up to GCSE level Computer Science, equipping them with the latest pedagogical methods and subject knowledge. This training is supported by the Computing Quality Framework, which helps schools assess their current provision and develop strategies to enhance their computing education through targeted development areas.

An important aspect of the Hub's work is its promotion of NCCE initiatives like the I Belong programme, which encourages girls to pursue computer science, and the Isaac Programming resources for A-level centres. These programmes are part of a broader effort to address gender imbalances and foster greater participation in computing from underrepresented groups. The Hub also collaborates with other curriculum hubs across the region, championing the importance of digital skills for young people.

The impact of the Hub's and the NCCE's efforts is already evident. There is an increase in the number of students taking Computer Science at the GCSE level, attributed to more schools offering the subject. With the support of the Hub, six large secondary schools within the region have developed action plans and committed to delivering computer science courses in the upcoming academic year. This progress highlights the Hub's role, in line with other NCCE computing hubs nationally, in upskilling teachers and encouraging schools to expand their computing education offerings.

One of the Hub's strategies includes engaging with large multi-academy trusts. This approach has proven successful in facilitating a wide reach of CPD, benefiting a large group of students through the trickle-down effect of training delivered to centrally engaged teachers. This engagement model ensures that the training provided has a broad impact, affecting multiple schools and a significant number of students.

Despite these successes, the Hub faces ongoing challenges. Participation in the programme is voluntary, and there is only a small pool of teachers with the time and capacity to engage. Schools are not obligated to participate, and the constraints of releasing staff for CPD, even when funding is available, remain a barrier.

A noticeable trend is that more teachers engage in CPD towards the end of the academic year when they have more time to focus on their development. This seasonal engagement suggests a need for flexible CPD offerings that align with teachers' availability, making it easier for them to participate without compromising their day-to-day responsibilities.

Overall, the West Yorkshire Computing Hub exemplifies a proactive and adaptive approach to enhancing computing education. By addressing the constraints faced by teachers and promoting digital literacy, the Hub contributes to a more robust and effective computing education framework in the region. Through continued efforts to upskill teachers and support schools, the Hub is making significant strides in preparing students for a digital future.

7

Widening access to digital skills and data careers

"I learned that data science is related to a lot of careers. I was already planning on coming to this university and **it has made me even more determined now."**

– Pupil participating in LODSS

The Leeds Institute for Data Analytics (LIDA) launched the Open Data Science for Schools (LODSS) initiative in 2022 with the mission of narrowing the digital skills gap for young people in areas of acute socioeconomic inequality in Bradford. The place-based initiative, particularly focused on Keighley, addresses the specific barriers to widening participation in digital skills and careers identified by the community. These barriers include food insecurity, lack of positive role models, poor oral health, low physical activity, and low aspirations. Data collected by LODSS show that these factors adversely affect school attendance, learning development, perceptions of career opportunities, and the continuation into higher education, as well as young people's empowerment to enact local change.

In 2023, only 50% of students surveyed by LODSS felt they could make a positive difference in their community, indicating a significant gap in confidence and aspiration. To address this, LODSS designed and delivered digital skills workshops for primary and secondary schools in Keighley, led by LIDA's diverse cohort of early-career data scientists. These workshops not only provided students with essential digital skills but also introduced them to the real-world applications of data science, positioning the data scientists as role models and inspirations for careers in the digital and data fields.

The workshops engaged Year 8 and 9 pupils, introducing them to coding with Scratch, critical thinking through nutrition data puzzles, and data techniques to understand food sourcing. Feedback from these workshops was overwhelmingly positive, with pupils expressing newfound appreciation for the role of data science in solving local challenges.

To further raise aspirations for digital careers, LODSS introduced over 150 students to interactive computer-generated environments using VR headsets, the "Omnideck" – a large 360° treadmill, real-time brain scanning, and simulations at the Centre for Immersive Technologies based in HELIX at the University of Leeds. These activities provided pupils with hands-on experiences in advanced technologies, fostering their interest in pursuing digital and data careers.

LODSS employs a network-based approach, working closely with local practitioners, teachers, healthcare workers, charities, and businesses to design interventions that increase access to digital skills. Collaboration with organisations like Raspberry Pi's Code Club and the local charity Rethink Food has enabled the development of digital activities that address local issues, such as planning the location of food banks to combat food insecurity using data-driven approaches.

In response to the interconnected nature of local challenges in Keighley, LODSS is adopting a whole-systems approach in 2024 to address low physical activity and poor oral health. This includes delivering events and demonstrations with key stakeholders and community groups to increase physical activity levels. For instance, the event "Fun Moves" in Keighley integrates interactive sessions, lifestyle talks, dance activities, and active gaming, combining expertise from local practitioners, Dance United Yorkshire, West Yorkshire Combined Authority's Active Travel team, and others. These initiatives aim to inspire families to make movement a central part of their lives, and LODSS collects data to understand barriers to an active lifestyle in Keighley.

The impact of LODSS has been significant. A thriving Code Club has been established at Carlton Keighley Secondary School, and LIDA's data scientists who led LODSS activities have progressed to leadership roles in the data and digital sectors or are now leading training and education networks. Additionally, data gathered from student surveys during the pilot has led LIDA to review its entrant criteria for its Data Scientist Development Programme and to establish the University of Leeds's first positive action case for recruiting individuals from low socioeconomic backgrounds.

After its pilot year, LODSS was presented back to the Keighley community in October 2023 and is now integrated into the network response to local challenge factors. This ongoing engagement ensures that the initiative continues to address the specific needs of the Keighley community, empowering young people with the digital skills and confidence to pursue successful careers in the data and digital sectors.

"The best part of the day was when I went on the Omnideck. I didn't even know that was a thing!"

– Pupil participating in LODSS

End word

Maryam Kapree

University of Leeds
undergraduate student

I am very grateful to be sharing my experience as a young person from the North of England who has experienced the lack of investment and underfunding, whilst also growing up in deprivation. Every child, no matter where they are situated, deserves the best chance at life. I call upon the government to prioritise our CYP, and to make sure that no child is left behind. It fills me with great pride to see all of the vital work that the N8 and the Child of the North group are completing, and I am delighted to see that this report is promoting the need to upskill our children and young people to ensure they can thrive in a society which is becoming increasingly digitised.

My name is Maryam Kapree, and I am a second-year student at the University of Leeds. Alongside my studies, I also work at Dixons Trinity Academy in Bradford, working with students aged 11-16. I am a proud Bradfordian, and I am incredibly excited by all of the ongoing work which is occurring in my city. However, despite this, I, along with many of my peers, have struggled with the chronic underfunding which the North of England has been subject to. We have felt the impact of this in many areas, including the lack of technological investment. Young people often lack the skills to use technology effectively, and the impact of this is profound.

The pandemic not only highlighted, but further deepened the technological divide. As students, we had to adapt to new ways of working, alongside several other challenges. I remember seeing many of my peers struggling with the daily work set online, simply because they lacked the technology to do so. Many of my peers also struggled with the online platforms which we were required to use independently on a daily basis, because they had never been taught how to use them. This meant that many students were far behind during the pandemic because they were unable to access their daily learning. Today, students are still struggling with the learning which they lost during the pandemic. The impact of this will reverberate for several generations, affecting academic attainment and potentially even affecting employment in the future.

Working with school students regularly means I am able to view the impact which our increasingly digital society is having on our youth. Many students struggle to complete their homework, which is often set online, due to poor IT literacy. This means that countless children are left behind, because they cannot access the additional learning outside of a classroom. Further to this, many young people struggle to access job opportunities, as many roles now require proficiency in technology. This limits the future prospects of many and provides certain individuals with an unfair advantage. All young people deserve a fair and equal chance, and this would involve being skilled in the use of technology.

In a society that requires greater technological skills daily, we need to make sure that our children and young people are able to succeed. Children in the North of England have suffered from neglect across various aspects of society already, and it is crucial that we prevent the gap between the North and South from widening. I am grateful to my school for providing me with adequate technological resources as well as adequate IT skills, but I know that this is not the case for the vast majority of CYP.

I urge the government to act now, because our youth deserve better. As the adults, we have to provide the tools so that our CYP can make the keys to the doors which will unlock their future. We must prevent more CYP from losing out; too many of our young people have been ignored for far too long. We must upskill our young people and improve their technological skills to ensure that they have access to equal opportunities.

"Young people often lack the skills to use technology effectively, and **the impact of this is profound."**

References and author list

Infographic references

Learning & Work Institute. Disconnected: exploring the digital skills gap [Internet]. 2021 [cited 2024 Jul 26]. Available from: https:// www.worldskillsuk.org/insights/disconnected-exploring-the-digital-skills-gap/

Nominet. Digital Youth Index Report 2021 [Internet]. 2021. Available from: https://www.nominet.uk/wp-content/uploads/2021/12/Nominet-Digital-Youth-Index-Report-2021.pdf

House of Lords Communications and Digital Committee. Digital exclusion: 3rd Report of Session 2022–23 [Internet]. 2023. Available from: https://committees.parliament.uk/publications/40662/documents/198365/default/

Children's Commissioner. Digital childhoods: a survey of children and parents [Internet]. 2022 [cited 2024 Jul 26]. Available from: https://www.childrenscommissioner.gov.uk/resource/digital-childhoods-a-survey-of-children-and-parents/

Oxford Learning College. Skills Gap Statistics UK 2023 [Internet]. 2023 [cited 2024 Jul 26]. Available from: https://www.oxfordcollege.ac/news/skills-gap-statistics-uk/

The Social Switch Project. Unlocking digital skills: How can young people thrive in a digital world? [Internet]. 2024. Available from: https://www.thesocialswitchproject.org.uk/our-blog/unlocking-digital-skills-how-can-young-people-thrive-in-a-digital-world#:~:text=However%2C%20nearly%2075%25%20of%20young,those%20without%20higher%20level%20qualifications

References

1. Nominet. Digital Youth Index [Internet]. Available from: https://www.nominet.uk/wp-content/uploads/2021/12/Nominet-Digital-Youth-Index-Report-2021.pdf

2. House of Lords Communications and Digital Committee. Digital exclusion: 3rd Report of Session 2022–23 [Internet]. 2023. Available from: https://committees.parliament.uk/publications/40662/documents/198365/default/

3. Lloyds Bank. UK Consumer Digital Index 2023: The UK's largest study of digital and financial lives. [Internet]. 2023 [cited 2024 Jul 26]. Available from: https://www.lloydsbank.com/consumer-digital-index.html

4. House of Commons Science and Technology Committee. Digital Skills Crisis- Second Report of Session 2016–17. 2016.

5. Industrial Strategy Council. UK Skills Mismatch 2030 [Internet]. 2019 [cited 2024 Jul 26]. Available from: https://industrialstrategycouncil.org/uk-skills-mismatch-2030-research-paper

6. Learning & Work Institute. Disconnected: exploring the digital skills gap [Internet]. 2021 [cited 2024 Jul 26]. Available from: https://www.worldskillsuk.org/insights/disconnected-exploring-the-digital-skills-gap/

7. Nominet. Digital Youth Index Report 2023 [Internet]. 2023 [cited 2024 Jul 26]. Available from: https://www.nominet.uk/nominets-annual-digital-youth-index-shows-changing-attitudes-of-8-25-year-olds-to-technology/

8. Children's Commissioner. Digital childhoods: a survey of children and parents [Internet]. 2022 [cited 2024 Jul 26]. Available from: https://www.childrenscommissioner.gov.uk/resource/digital-childhoods-a-survey-of-children-and-parents/

9. Quayyum F, Cruzes DS, Jaccheri ML. Cybersecurity awareness for children: A systematic literature review. 23 [Internet]. 2021 [cited 2024 Jul 26]; Available from: https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/2988304

10. Department for Education. Generative artificial intelligence (AI) in education [Internet]. 2024 [cited 2024 Jul 26]. Available from: https://www.gov.uk/government/publications/generative-artificial-intelligence-in-education/generative-artificial-intelligence-ai-in-education

11. Harry A. Role of AI in Education. Interdiciplinary J Hummanity Inj. 2023 Mar 24;2(3):260–8.

12. Ayeni OO, Hamad NMA, Chisom ON, Osawaru B, Adewusi OE, Ayeni OO, et al. AI in education: A review of personalized learning and educational technology. GSC Adv Res Rev. 2024;18(2):261–71.

13. Selwyn N. On the limits of artificial intelligence (AI) in education. Nord Tidsskr Pedagog Og Krit. 2024;10(1):3–14.

14. Ifenthaler D, Majumdar R, Gorissen P, Judge M, Mishra S, Raffaghelli J, et al. Artificial Intelligence in Education: Implications for Policymakers, Researchers, and Practitioners. Technol Knowl Learn [Internet]. 2024 Jun 4 [cited 2024 Jul 26]; Available from: https://doi.org/10.1007/s10758-024-09747-0

15. National Literacy Trust. Children, young people and teachers' use of generative AI to support literacy in 2024 [Internet]. 2024 [cited 2024 Jul 26]. Available from: https://literacytrust.org.uk/research-services/research-reports/children-young-people-and-teachers-use-of-generative-ai-to-support-literacy-in-2024/

16. Cyril H. The Impact of Artificial Intelligence on Job Markets: Opportunities and Challenges [Internet]. TechBullion. 2023 [cited 2024 Jul 26]. Available from: https://techbullion.com/the-impact-of-artificial-intelligence-on-job-markets-opportunities-and-challenges/

17. Păvăloaia VD, Necula SC. Artificial Intelligence as a Disruptive Technology—A Systematic Literature Review. Electronics. 2023 Jan;12(5):1102.

18. Agapito M, RN, Aquino QM, RN, Barreiro MS, RN, et al. Role of artificial intelligence and its impact in mental health services [Internet]. 2023 Jul [cited 2024 Jul 26]. Available from: https://www.himss.org/resources/role-artificial-intelligence-and-its-impact-mental-health-services

19. Kaywan P, Ahmed K, Ibaida A, Miao Y, Gu B. Early detection of depression using a conversational AI bot: A non-clinical trial. PLOS ONE. 2023 Feb 3;18(2):e0279743.

20. Yorita A, Egerton S, Chan C, Kubota N. Chatbots and robots: a framework for the self-management of occupational stress. ROBOMECH J. 2023 Oct 27;10(1):24.

21. Williams R, Ali S, Devasia N, DiPaola D, Hong J, Kaputsos SP, et al. AI+Ethics Curricula for Middle School Youth: Lessons Learned from Three Project-Based Curricula. Int J Artif Intell Educ. 2023 Jun 1;33(2):325–83.

22. Walter Y. Embracing the future of Artificial Intelligence in the classroom: the relevance of AI literacy, prompt engineering, and critical thinking in modern education. Int J Educ Technol High Educ. 2024 Feb 26;21(1):15.

23. Miao F, Holmes W, Ronghuai Huang, Hui Zhang. AI and education: guidance for policy-makers. UNESCO; 2021.

24. Almeida D, Shmarko K, Lomas E. The ethics of facial recognition technologies, surveillance, and accountability in an age of artificial intelligence: a comparative analysis of US, EU, and UK regulatory frameworks. AI Ethics. 2022 Aug 1;2(3):377–87.

25. EEF [Internet]. 2021 [cited 2024 Jul 8]. Using Digital Technology to Improve Learning. Available from: https://educationendowmentfoundation.org.uk/education-evidence/guidance-reports/digital

26. Yates S, Carmi E, Lockley E, Wessels B, Pawluczuk A. Me and My Big Data: Understanding Citizens Data Literacies Research Report [Internet]. University of Liverpool; 2021 [cited 2024 Jul 10]. Available from: https://livrepository.liverpool.ac.uk/3180002

27. Growing up digital: What do we really need to know about educating the digital generation? [Internet]. Nuffield Foundation. [cited 2024 Jul 10]. Available from: https://www.nuffieldfoundation.org/about/publications/growing-up-digital

28. Hobbs A, Bolan F. Distance learning. 2024 Oct 7 [cited 2024 Jul 10]; Available from: https://post.parliament.uk/research-briefings/post-pn-0639/

29. Digital equality in education [Internet]. Nuffield Foundation. [cited 2024 Jul 10]. Available from: https://www.nuffieldfoundation.org/project/digital-equality-in-education

30. OECD [Internet]. 2023 [cited 2024 Jul 10]. Digital equity and inclusion in education. Available from: https://www.oecd.org/en/publications/2023/08/digital-equity-and-inclusion-in-education_c56b91ad.html

31. OECD. Equity and Inclusion in Education: Finding Strength through Diversity [Internet]. OECD; 2023 [cited 2024 Jul 26]. Available from: https://www.oecd-ilibrary.org/education/equity-and-inclusion-in-education_e9072e21-en

32. Brussino O. Building capacity for inclusive teaching: Policies and practices to prepare all teachers for diversity and inclusion [Internet]. Paris: OECD; 2021 Oct [cited 2024 Jul 10]. Available from: https://www.oecd-ilibrary.org/education/building-capacity-for-inclusive-teaching_57fe6a38-en

33. Changes in Children's Recreational Screen Time During the COVID-19 Pandemic | Media and Youth | JAMA Pediatrics | JAMA Network [Internet]. [cited 2024 Jul 10]. Available from: https://jamanetwork.com/journals/jamapediatrics/fullarticle/2803664

34. Routledge & CRC Press [Internet]. [cited 2024 Jul 10]. Screenwise: Helping Kids Thrive (and Survive) in Their Digital World. Available from: https://www.routledge.com/Screenwise-Helping-Kids-Thrive-and-Survive-in-Their-Digital-World/Heitner/p/book/9781032350134

35. Pandya A, Lodha P. Social Connectedness, Excessive Screen Time During COVID-19 and Mental Health: A Review of Current Evidence. Front Hum Dyn [Internet]. 2021 Jul 22 [cited 2024 Jul 26];3. Available from: https://www.frontiersin.org/journals/human-dynamics/articles/10.3389/fhumd.2021.684137/full

36. www.ofcom.org.uk [Internet]. 2021 [cited 2024 Jul 10]. Children and parents: media use and attitudes report 2020/21. Available from: https://www.ofcom.org.uk/media-use-and-attitudes/media-habits-children/children-and-parents-media-use-and-attitudes-report-2021/

37. Leeds Trinity University [Internet]. [cited 2024 Jul 15]. British Families in Lockdown. Available from: http://www.leedstrinity.ac.uk/research/british-families-in-lockdown-study/

38. The British Academy [Internet]. [cited 2024 Jul 15]. Understanding Digital Poverty and Inequality in the UK. Available from: https://www.thebritishacademy.ac.uk/publications/understanding-digital-poverty-and-inequality-in-the-uk/

39. Straker L, Zabatiero J, Danby S, Thorpe K, Edwards S. Conflicting Guidelines on Young Children's Screen Time and Use of Digital Technology Create Policy and Practice Dilemmas. J Pediatr. 2018 Nov;202:300–3.

40. BBC Children's and Education survey parents across the UK on their attitudes towards screens [Internet]. [cited 2024 Jul 15]. Available from: https://www.bbc.co.uk/mediacentre/2023/bbc.com/mediacentre/2023/bbc-childrens-survey-screen-time/

41. Look Both Ways: Practical Parenting in the Age of Screen [Internet]. Internet Matters; 2019 [cited 2024 Jun 5]. Available from: Internet-Matters-Report-Look-both-ways-screen-time.pdf (internetmatters.org)

42. Liu J, Riesch S, Tien J, Lipman T, Pinto-Martin J, O'Sullivan A. Screen Media Overuse and Associated Physical, Cognitive, and Emotional/Behavioral Outcomes in Children and Adolescents: An Integrative Review. J Pediatr Health Care Off Publ Natl Assoc Pediatr Nurse Assoc Pract. 2022;36(2):99–109.

43. Tobin J. Educational technology: Digital innovation and AI in schools. 2023 Nov 20 [cited 2024 Jul 15]; Available from: https://lordslibrary.parliament.uk/educational-technology-digital-innovation-and-ai-in-schools/

44. Muppalla SK, Vuppalapati S, Reddy Pulliahgaru A, Sreenivasulu H. Effects of Excessive Screen Time on Child Development: An Updated Review and Strategies for Management. Cureus. 15(6):e40608.

45. Hale L, Kirschen GW, LeBourgeois MK, Gradisar M, Garrison MM, Montgomery-Downs H, et al. Youth screen media habits and sleep: sleep-friendly screen-behavior recommendations for clinicians, educators, and parents. Child Adolesc Psychiatr Clin N Am. 2018 Apr;27(2):229–45.

46. Arundell L, Gould L, Ridgers ND, Ayala AMC, Downing KL, Salmon J, et al. "Everything kind of revolves around technology": a qualitative exploration of families' screen use experiences, and intervention suggestions. BMC Public Health. 2022 Aug 23;22(1):1606.

47. Francis K, Scholten H, Granic I, Lougheed J, Hollenstein T. Insights about Screen-Use Conflict from Discussions between Mothers and Pre-Adolescents: A Thematic Analysis. Int J Environ Res Public Health. 2021 Apr 28;18(9):4686.

48. Nesi J, Choukas-Bradley S, Prinstein MJ. Transformation of Adolescent Peer Relations in the Social Media Context: Part 2-Application to Peer Group Processes and Future Directions for Research. Clin Child Fam Psychol Rev. 2018 Sep;21(3):295–319.

49. Brautsch LA, Lund L, Andersen MM, Jennum PJ, Folker AP, Andersen S. Digital media use and sleep in late adolescence and young adulthood: A systematic review. Sleep Med Rev. 2023 Apr;68:101742.

50. Sharevski F, Loop JV. Children, Parents, and Misinformation on Social Media [Internet]. arXiv; 2023 [cited 2024 Jul 15]. Available from: http://arxiv.org/abs/2312.09359

51. Siebers T, Beyens I, Pouwels JL, Valkenburg PM. Explaining variation in adolescents' social media-related distraction: The role of social connectivity and disconnectivity factors. Curr Psychol. 2023 Dec 1;42(34):29955–68.

52. Munsamy AJ, Chetty V, Ramlall S. Screen-based behaviour in children is more than meets the eye. South Afr Fam Pract Off J South Afr Acad Fam Pract Care. 2022 Feb 10;64(1):e1–4.

53. Department for Digital, Culture, Media and Sport, Home Office. Online Harms White Paper [Internet]. 2019 Apr [cited 2024 Jul 26]. Available from: https://www.gov.uk/government/consultations/online-harms-white-paper

54. Jurasz O. Online violence against women: A Four Nations study [Internet]. The Open University; 2024 [cited 2024 Jul 16]. Available from: https://oro.open.ac.uk/96398/

55. GOV.UK [Internet]. [cited 2024 Jul 16]. Review of sexual abuse in schools and colleges. Available from: https://www.gov.uk/government/publications/review-of-sexual-abuse-in-schools-and-colleges/review-of-sexual-abuse-in-schools-and-colleges

56. Four in ten young women have been sent unsolicited sexual images | YouGov [Internet]. [cited 2024 Jul 16]. Available from: https://yougov.co.uk/society/articles/21937-four-ten-young-women-have-been-sent-unsolicited-se

57. GOV.UK [Internet]. [cited 2024 Jul 16]. Children's online activities, risks and safety: A literature review by the UKCCIS Evidence Group. Available from: https://www.gov.uk/government/publications/childrens-online-activities-risks-and-safety-a-literature-review-by-the-ukccis-evidence-group

58. Kowalski RM, Giumetti GW, Schroeder AN, Lattanner MR. Bullying in the digital age: A critical review and meta-analysis of cyberbullying research among youth. Psychol Bull. 2014;140(4):1073–137.

59. Fauman MA. Cyberbullying: Bullying in the digital age. American Journal of Psychiatry. 2008 Jun; 165(6): 780-1.

60. kentesafety. The experiences of 11-16 year olds on social networking sites – new NSPCC Research. [Internet]. Kent Online Safety Blog. 2014 [cited 2024 Jul 17]. Available from: https://kentesafety.wordpress.com/2014/03/04/the-experiences-of-11-16-year-olds-on-social-networking-sites-new-nspcc-research/

61. Scientific research on bullying and cyberbullying: Where have we been and where are we going [Internet]. [cited 2024 Jul 17]. Available from: https://www.researchgate.net/publication/277247521_Scientific_research_on_bullying_and_cyberbullying_Where_have_we_been_and_where_are_we_going

62. The Power of the Web: A Systematic Review of Studies of the Influence of the Internet on Self-Harm and Suicide in Young People | PLOS ONE [Internet]. [cited 2024 Jul 17]. Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0077555

63. #NoSnowflakes: The toleration of harassment and an emergent gender-related digital divide, in a UK student online culture - Craig Haslop, Fiona O'Rourke, Rosalynd Southern, 2021 [Internet]. [cited 2024 Jul 17]. Available from: https://journals.sagepub.com/doi/full/10.1177/1354856521989270

64. Teen girls, sexual double standards and 'sexting': Gendered value in digital image exchange - Jessica Ringrose, Laura Harvey, Rosalind Gill, Sonia Livingstone, 2013 [Internet]. [cited 2024 Jul 17]. Available from: https://journals.sagepub.com/doi/10.1177/1464700113499853

65. Full article: 'Wanna trade?': Cisheteronormative homosocial masculinity and the normalization of abuse in youth digital sexual image exchange [Internet]. [cited 2024 Jul 17]. Available from: https://www.tandfonline.com/doi/full/10.1080/09589236.2021.1947206

66. Recommending Toxicity: The role of algorithmic recommender functions on YouTube Shorts and TikTok in promoting male supremacist influencers - DCU Anti-Bullying Centre [Internet]. [cited 2024 Jul 17]. Available from: https://antibullyingcentre.ie/publication/recommending-toxicity-the-role-of-algorithmic-recommender-functions-on-youtube-shorts-and-tiktok-in-promoting-male-supremacist-influencers/

67. Roberts S, Wescott S. To quell the problem, we must name the problem: the role of social media 'manfluencers' in boys' sexist behaviours in school settings. Educ Dev Psychol [Internet]. 2024 [cited 2024 Jul 17]; Available from: https://research.monash.edu/en/publications/to-quell-the-problem-we-must-name-the-problem-the-role-of-social-

68. Setty E. The Conversation. 2023 [cited 2024 Jul 17]. How 'misogyny influencers' cater to young men's anxieties. Available from: http://theconversation.com/how-misogyny-influencers-cater-to-young-mens-anxieties-201498

69. Browning C. Women's Aid. 2023 [cited 2024 Jul 17]. Influencers and Attitudes Report. Available from: https://www.womensaid.org.uk/influencers-and-attitudes-report/

70. Full article: The problem of anti-feminist 'manfluencer' Andrew Tate in Australian schools: women teachers' experiences of resurgent male supremacy [Internet]. [cited 2024 Jul 17]. Available from: https://www.tandfonline.com/doi/full/10.1080/09540253.2023.2292622

71. GOV.UK [Internet]. 2019 [cited 2024 Jul 16]. Online Harms White Paper. Available from: https://www.gov.uk/government/consultations/online-harms-white-paper

72. Young people's views on sexting education and support needs: findings and recommendations from a UK-based study: Sex Education: Vol 19 , No 1 - Get Access [Internet]. [cited 2024 Jul 17]. Available from: https://www.tandfonline.com/doi/full/10.1080/14681811.2018.1475283

73. McGeeney E, Hanson E. Digital Romance: A research report exploring young people's use of technology in their romantic relationships and love lives. 2017 Dec.

74. ASCL - Understanding and Combatting Youth Experiences of Image-Based Sexual Harassment and Abuse [Internet]. [cited 2024 Jul 17]. Available from: https://www.ascl.org.uk/ibsha

75. UK Sexplain, Mendes K, Ringrose J, Horeck T. Online Sexual Harassment Comprehensive Guidance for Schools. 2020 Jul; Available from: https://figshare.le.ac.uk/articles/figure/Online_Sexual_Harassment_Comprehensive_Guidance_for_Schools/12620276

76. O'Rourke F, Haslop C. #Men4Change Toolkit [Internet]. University of Liverpool; 2023 [cited 2024 Jul 17]. Available from: https://datacat.liverpool.ac.uk/2185/

77. (PDF) Engaging Men and Boys in Violence Prevention [Internet]. [cited 2024 Jul 17]. Available from: https://www.researchgate.net/publication/328781989_Engaging_Men_and_Boys_in_Violence_Prevention

78. Digital Learning for Every Child | UNICEF [Internet]. 2021 [cited 2024 Jul 17]. Available from: https://www.unicef.org/reports/digital-learning-every-child

79. Chalmers C. Robotics and computational thinking in primary school. Int J Child-Comput Interact. 2018 Sep 1;17:93–100.

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