THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

DSIT's Media Literacy Programme (MLP) Fund

LSE – Common Sense Digital Citizenship Curriculum Evaluation

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Abades-Barclay, F and Banaji, S. (2024)

LSE – Common Sense Digital Citizenship Curriculum Evaluation.

London, UK: Department of Media and Communications, LSE.

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Executive Summary

1 Background

Recent research underscores concerns among parents/carers, educators and young people themselves regarding children's digital engagement, particularly focusing on social media habits and screen time. These concerns include the emotional and psychological impacts of cyberbullying, online privacy issues, exposure to inappropriate content, financial pressures for online purchases, and challenges associated with online gaming. To address these concerns for the **Department for Science, Innovation and Technology (DSIT)'s** Media Literacy Programme, our team in the Department of Media and Communications at the **London School of Economics and Political Science (LSE)** partnered with non-profit stakeholder **Common Sense Media** to undertake an independent evaluation of the effectiveness of their pre-existing Digital Citizenship Curriculum materials in enhancing UK school students' media literacy and digital citizenship.

2 Aims

LSE's independent research evaluation aimed to assess:

a) **Changes in different cohorts of students' digital citizenship, media literacy and dispositions towards misinformation and disinformation:**

We aimed to assess changes in student's digital citizenship, media literacy, and attitudes towards misinformation and disinformation after the teaching of the stakeholder's Digital Citizenship materials in primary and secondary schools in the UK. We piloted the materials as part of an intervention in four schools with a key focus on safeguarding, mental health, online hate, privacy, and the critical recognition and resistance of misinformation and disinformation.

b) **Evaluation of the impact of different teaching styles and lessons on online versatility, knowledge, safety and digital ethics.**

Our goal was to evaluate the extent to which different lessons and styles of teaching during the aforementioned media literacy intervention cultivated and increased online versatility, knowledge, safety and digital ethics among students aged 6 to 16 in the UK.

c) **Identification of effective assessment methods for children's online civic and leisure habits and behaviours**

Our research and independent evaluation also aimed to identify effective methods for assessing changes in children and young people's online civic and leisure habits and behaviours following targeted digital citizenship interventions. In order to do this, we sought to develop instruments and a methodology tailored specially for evaluating both children's learning and aspects of the stakeholder materials that fulfil their mandate and that could be strengthened further.

3 Methods and Implementation

The methods we employed to assess the impact of the Digital Citizenship materials and their teaching on 6-16 year olds' media literacy and digital citizenship were qualitative and quantitative.

Methods of data collection included:

a) Teacher training sessions for delivering a pre-existing Digital Citizenship Curriculum

b) The development, piloting and the administration of original scenario-based evaluations on Qualtrics across 200 students in four schools (pre-tests)

c) Classroom observations and fieldnotes during the media literacy intervention lessons

d) The development, piloting and administration of original scenario-based post-teaching evaluations on Qualtrics across 200 students in four schools (post-tests)

e) Focus groups with the students

f) In depth interviews with the teachers.

Methods of data analysis included:

g) Quantitative scoring of pre and post tests for 200 children between 6 and 16 (n= 215) to establish baseline digital literacy/citizenship and changes to this following the intervention

h) Thematic analysis of the focus group and interview data with teachers and students

i) Thematic analysis of the observational data from classrooms

j) Contextual analysis of school data on socioeconomic and demographic profiles

k) Contextual analysis of the students' self-reported estimation of digital media access and use

l) A combination of these five different types of data in analysing the materials and pedagogic approaches that worked best in different circumstances to strengthen group understandings of misinformation and disinformation online.

4 Findings

- The quantitative data from the pre- and post-tests demonstrate **consistent improvement** across all schools and all age cohorts after the teaching of the stakeholder's digital citizenship curriculum for as little as six weeks.

- Analysis of our qualitative data indicates a broadly **positive reception** of the intervention's content by both teachers and students in whose words the lessons were often 'engaging and interesting'.

- Factors influencing resilience to misinformation and disinformation include **cross-curricular prioritisation** of learning about **digital safety, digital health, online etiquette, online cultures and media ownership**; effective **scaffolding** by experienced digital educators and peers; and access to up to date, and well serviced **technological resources**.

- Teachers play a vital role in fostering **enriching discussions** amongst students' and supporting students who have lower initial knowledge about and/or interest in digital citizenship.

- Effective learning environments are characterised by the **embedding, resourcing and scaffolding** of digital literacy at all key stages.

- Student and teacher **dispositions**, such as curiosity, playfulness, and self-reflection, as well as democratic **whole school cultures** influence the outcomes of teaching and learning with the materials.

- There is an existing **digital divide** in the schools **between groups of students, and between the schools,** regarding digital knowledge, access and resources.

- The quantitative **scenario-based assessment tools** worked best when the evaluators removed questions that could be answered in many ways depending on parenting cultures, moral outlooks and/or disciplinary regimes.

- **Observations** of lessons and interviews with teachers yielded rich explanatory data for some of the statistical outcomes. These included pedagogic and critical media literacy insights.

- Students of all ages consistently wanted more time to talk about and **question adult digital habits and choices**, several either acting as technology guides for their parents/significant adults or commenting on parental/adult tech health.

5 Conclusions

- A persistent digital divide affects digital citizenship: students from 'media rich' and 'digitally experienced' households demonstrate a more intuitive grasp of how to navigate digital tools, while those from less experienced households face a steeper learning curve, impacting their engagement and the benefit drawn from digital citizenship interventions in schools.

- Prioritising content/information delivery over fostering open, exploratory discussions, particularly observed in rural classes and in lower sets in urban classrooms, neglects students' unique digital experiences and hinders exploration of complex issues like the environmental impact of technologies, online harms, Artificial Intelligence (AI) and disinformation, limiting the development of critical discussions and dispositions.

- Varied technological integration levels in secondary schools impact teachers' confidence, lesson delivery and students' educational experiences.

- School culture and practices significantly influence lesson delivery, with schools that emphasise digital media literacy positively responding best to the intervention and showcasing exemplary practices such as student digital leaders and specialised teacher training.

- Evaluations of interventions should not be based solely on test scores and must combine qualitative and quantitative methods.

- The complexity of developing a scoring rubric and pre- and post-test materials lies in the evaluators' ability to assess not (moral and practical) choices that might vary based on parenting cultures but rather factual knowledge, universal indicators of understanding and complex reasoning.

- While technical knowledge and playful dispositions were more evenly distributed across schools, the schools and students who understood digital environments in the context of wider social tendencies and an ethics of respect and care showed the most consistent learning in relation to misinformation and disinformation, with critical and curious dispositions supporting fellow-students' learning.

- The gains of scenario-based critical illustrations of everyday problems in digital social encounters are significant for building resistance to bullying, misinformation and disinformation amongst school students compared to functional learning of technical features and facts.

- Digital citizenship materials themselves need to be updated regularly and cannot afford to become outdated or irrelevant. These materials should employ and explain the latest terminology to build trust and rapport with teachers and students.

- The introduction to the materials and some of the lessons need to be redesigned to take into account real-world UK classrooms; this means that they need to include more flexibility for the teachers to pace and deliver or to change the ordering and flow of lessons.

- The materials need to include a section that addresses the environmental impact of the proliferation of new and emerging technologies.

- The materials need to include a section that works holistically with schools, children and parents/significant adults around adult digital habits, knowledge and health.

6 Recommendations

For schools

- Implement more in-depth explorations of digital citizenship topics in primary schools through regular age-appropriate lessons that are central to the school's curriculum
- Hold annual half-day trainings and discussions on the digital and online sphere for parents and carers
- Implement more in-depth explorations of digital citizenship topics in secondary schools through longer lessons that are central to the school's curriculum at both key stages
- Spread the interventions across subjects throughout term-time in a creative format
- Maintain or constitute mixed ability groupings to foster inclusivity and enthusiastic learning around media literacy and digital citizenship
- Build in customised assessments in different subject areas that include some of the most challenging aspects of media literacy and digital citizenship
- Emphasise the participation of all students and value how diverse backgrounds, experiences and perspectives approach new and emerging media and technologies
- Work with the local authority and media literacy providers to ensure that all teachers have continuing professional development opportunities around new and emerging media and social media so that they are confident and knowledgeable about the ownerships and environmental impact of technologies, and about digital environments and digital habits
- Make sure that teachers are confident to facilitate meaningful interactions and discussions about cutting edge digital issues such as the environmental impact of tech, privacy, data ownership, predatory behaviour online, AI, misinformation and disinformation, contributing to a safe and credible classroom experience.

For organisations delivering media literacy/digital citizenship interventions

- Utilise a combination of tailored quantitative and in depth qualitative methods to capture a comprehensive view of the intervention's impact on behaviours, dispositions, and attitudes

- Use critical thematic analysis of the qualitative data to reflect on potential mismatches between the curriculum and the needs of particular cohorts of children

- Create an age-appropriate baseline evaluation organised into thematic areas to facilitate targeted analysis and comparison, enhancing insights gained

- Develop a systematic rubric to assess knowledge around themes and dispositions, providing a structured framework for evaluating effectiveness and instilling essential qualities in students

- Ensure that there are thorough annual reviews and updates to the evaluation materials in tandem with the digital citizenship intervention materials to include current online terms and nomenclatures that will engage children, and adapt to evolving tendencies and challenges in digital citizenship, ensuring content remains effective and relevant over time

- Engage stakeholders, including teachers, governors, students, and parents, in the evaluation process to enrich outcomes

- Engage in both immediate short-term and longitudinal analyses to track changes in children's media literacy and digital citizenship over time, allowing for a deeper understanding of the sustained impact of media and digital citizenship interventions on students' digital citizenship skills, dispositions, and behaviours

- Encourage critical media literacy researchers to work alongside teachers and media literacy providers to provide a holistic view of curriculum, pedagogy and assessment.

1 About The Project

The Media Literacy Programme Fund of the UK Government's Department for Science, Innovation and Technology aims to engage stakeholders working in the field of media literacy and digital citizenship in processes of rigorous evaluation. This is in line with OFCOM's paper on "Evaluation as a tool of sharpening Media Literacy Interventions"[1].

The call required partnerships between stakeholders who work in the field of media literacy/digital citizenship and academic institutions with knowledge and experience of independent research. Our team in the Department of Media and Communications at the London School of Economics and Political Science (LSE) partnered with the UK wing of US and UK-based media literacy non-profit Common Sense Media (CSM) to undertake an independent evaluation of the effectiveness of a pre-existing set of Digital Citizenship curriculum materials. The Department of Media and Communications at LSE is globally recognised for its longstanding work on media literacy, childhood and education (cf. Banaji, 2015; 2017; 2020; Livingstone, 2009; 2016; 2020). Common Sense Media is a non-profit organisation dedicated to providing families and schools with trustworthy information and tools to navigate the increasingly complex digital world. The Digital Citizenship curriculum had already been taught in US schools and materials were tailored for UK schools. The Digital Citizenship lessons are intended to cater to both primary and secondary students. Materials are in the process of being amended further to suit the differentiated needs of each Key Stage with a view to informing and strengthening decision-making, knowledge and agency for UK children and young people. Via a series of worksheets, online videos and discussion points, the lessons aim to foster growing online versatility, knowledge, and ethics. The materials do not duplicate what is already taught in the national curriculum for Computer Science, English or PSHE but rather dovetail with these to form a holistic cross-curricular unit.

Our research and evaluation was carried out between May and December 2023 in two UK primary and two UK secondary schools in and around London and Essex. The methods we employed to assess the impact of the Digital Citizenship materials and their teaching on the students' media literacy and digital citizenship were qualitative and quantitative.

[1] **https://www.ofcom.org.uk/research-and-data/media-literacy-research/toolkit**

Methods of data collection included: a) Teacher training sessions for delivering a pre-existing Digital Citizenship curriculum; b) the development, piloting and the administration of pre-tests on Qualtrics across 200 students in four schools; c) classroom observations and fieldnotes during the media literacy intervention lessons; d) post-teaching evaluations (post-tests) across 200 students in four schools; e) focus groups with the students; and f) in depth interviews with the teachers.

Methods of data analysis included: a) quantitative scoring of pre and post tests for 200 students between the ages of 6 and 16 (n= 215) to establish baseline digital literacy/ citizenship and changes to this following the intervention; b) thematic analysis of the focus group and interview data with teachers and students; c) thematic analysis of the observational data from classrooms; d) contextual analysis of school data on socioeconomic and demographic profiles; e) contextual analysis of students' self-reported digital media access and use; and f) a combination of these five different types of data in analysing the materials and pedagogic approaches that worked best in different circumstances to strengthen group understandings of safety, well-being, ethics, misinformation and disinformation online.

1.1 Background

Recent research highlights widespread concerns amongst parents and educators regarding children's digital engagement, with a particular focus on social media habits and screen time (Badri et al., 2017; Hartshorne et al., 2021). A comprehensive Ofcom (2021) study in the UK detailed common parental concerns about children's online usage. These concerns include: 1) the emotional and psychological impact of cyberbullying and online harassment; 2) online privacy and potential mishandling of personal data by corporations, 3) exposure to inappropriate content; 4) financial pressures for online purchases; and 5) the world of online gaming, including in-game expenditure, bullying within gaming communities, and inappropriate content and themes of games.

Our independent research evaluation aims to shed light on the most effective ways of assessing changes in children's learning about digital citizenship following a targeted six week intervention. We explore how digital citizenship materials which were first conceived as resources in the US and have been customised for the UK contribute to knowledge, skills and the development of 'healthy digital habits' at different key stages. Healthy digital habits are defined as responsible behaviours promoting online awareness, informed decision-making, critical thinking skills, screen time management for mental well-being, and the fostering of responsible and empathetic civic decision-making in online and offline venues. The findings of LSE's evaluation are intended for use by a broad audience of : 1) parents, teachers and media educators to shed light on effective media literacy interventions and outcomes; 2) by our non-profit partner to tighten and fine tune its materials for UK audiences; and 3) by the funders (DSIT) to improve the collective evidence base about effective ways of delivering and evaluating media literacy interventions. Our work contributes to the development of engaging media literacy interventions and evaluation best practices in media and digital literacy globally.

2 Objectives and Methods

2.1 Research questions

During our evaluation of a digital citizenship curriculum intervention, our project sought to answer the following research questions:

1) What factors enable some school communities to recognise and question disinformation?

And:

2) How impactful are the non-profit partner's digital citizenship resources in improving students' digital literacy, including their ability to recognise and resist misinformation and fake news?

To answer these questions, we implemented the following objectives:

1) to train teachers in each of four schools to teach the Common Sense Media digital citizenship curriculum and scaffold them in assessment of their students' learning; and to find out how they viewed the intervention and curriculum materials through post-intervention interviews;

2) to produce succinct, age-appropriate evaluation materials to establish the baseline media literacy and digital knowledge of the school students in key stages 1 to 4 across primary and secondary schools; and to measure the extent of change and the most effective means of change over the course of a six week digital citizenship intervention by implementing post-intervention assessments and focus groups with the children;

3) to observe the pedagogic implementation and learning during our media literacy intervention with the use of the non-profit stakeholder's materials in each key stage classroom for 6 weeks through observations and field notes;

And:

4) to establish how effective the materials are at improving children's media literacy in different school environments and key stages in regard to issues such as digital safety and security, online identity protection, being able to distinguish marketing materials online and particular originators and promotors, and being able to recognise fake information or disinformation.

2.2 Participant schools

Table 1 presents detailed information on participant schools, providing insights into their demographics, educational settings and key characteristics.

Table 1: Overview of Participant Schools

School	Location	Classroom technological environment	Existing whole-school initiatives for digital awareness
A	Suburban	Smart classroom	Online safety lessons, peripheral to curriculum, sporadic implementation.
B	Rural	Smart classroom	Online safety lessons, peripheral to curriculum, sporadic implementation.
C	Inner city	Simple projector set-up	Online safety lessons, peripheral to curriculum, sporadic implementation.
D	Inner city	Smart classroom	Online safety lessons, embedded in curriculum, consistent implementation. Ongoing activities involving parents, initiatives such as students as tech leads and collaborations with UK charities focusing on children and young people's online safety.

Worksheets were:	Year group	Experienced digital educator
Printed	Y2	NO
	Y5	NO
Printed	Y2	NO
	Y5	YES
Printed	Y10	NO
	Y10	NO
Digital	Y8	YES
	Y8	
	Y10	YES

2.3 The data we collected and what we did with it

The data we collected fell into two broad categories: quantitative pre- and post-intervention evaluations (in the form of multiple-choice quizzes with interesting real-world scenarios and some self-evaluation digital access and use questions); and qualitative (in the form of classroom observations and fieldnotes, teacher interviews and student focus groups). Pre-intervention scenario-based quizzes (pre-tests) were piloted, checked and uploaded, then distributed via the software Qualtrics in the presence of the research team and/or teaching staff on child-friendly tablets provided by LSE or on schools' computers, depending on the schools' resources. Once we had established the baseline scores for the students' digital citizenship and followed up with post-intervention scenario-based quizzes (post-tests), key stage-based focus-groups with students and individual teacher interviews were recorded, transcribed and analysed using thematic analysis.

2.4 Theory of change

LSE's evaluation of Common Sense Media's digital citizenship curriculum and the intervention in schools assessed the impact of the stakeholder's lessons on students' digital literacy and dispositions towards online citizenship. Our key focus during the six-week intervention blocks was on safe-guarding, mental health and privacy as well as critical recognition of and ability to resist online scams, misinformation and disinformation (Banaji & Bhat, 2022; Shu et al., 2020; Pérez-Escolar at al. 2023). To enable this, we employed a modified form of Lev Vygotsky's (1934; 1978) theory of 'scaffolding'. We also drew on his concept of the 'zone of proximal development' and on theories of critical media literacy (Buckingham, 2009; Kellner & Share, 2019; Smith & Johnson, 2021) to explain and evaluate students' transition from lack of knowledge/understanding or imprecise understanding and carelessness through guided support to informed, differentiated learning and problem solving in group settings.

While critical media literacy encourages students to go beyond functional skills with digital technologies to an understanding of the reasons for particular digital systems and behaviours, Vygotsky's theory of 'scaffolding,' refers to the supportive guidance, knowledge, advice and framework for learning provided by educators to assist students in reaching higher levels of understanding to navigate complex problems, issues and systems. The concept of the 'zone of proximal development', meanwhile, emphasises the difference between what students can do by themselves and what they can do with the guidance and support of a scaffolder, such as an educator, parent or more capable peer.

In the table on the next page, we present the operationalisation of our theory of change alongside key assumptions crucial to the success of the intervention and its evaluation. This table reflects a comprehensive analysis of the factors guiding the implementation and evaluation of the digital citizenship curriculum and the anticipated outcomes. The development of this framework was informed by a rigorous process involving various stakeholders, educational experts, our advisory board, and research findings.

Our theory of change sees the intervention being successful at scaffolding children and young people towards critical media and digital literacy depending on a range of factors that we summarise in Table 2. This framework highlights the multifaceted approach required to foster meaningful engagement with digital environments and address emerging dilemmas. Additionally, our awareness of the necessity for materials to actively engage learners in transformative ways underscores the importance of thoughtful, iterative design and implementation strategies (Ballard & Butler, 2011). The operationalisation of our theory of change is outlined comprehensively in the table on the next page, offering insights into the mechanisms driving the evaluation of the intervention's effectiveness.

Table 2: Theory of Change

INPUTS	OUTPUTS	
	Activities	**Participation**
Digital citizenship curriculum framework Differentiated teaching materials Trained educators Trained researchers with ethics, child safety, media literacy and media education background Funding from DSIT Support from Common Sense Media, the non-profit organisation Support from an advisory board of experts	Delivery of digital citizenship curriculum in schools Training sessions for educators Development and piloting of tailored assessment tools to evaluate existing and changing levels of critical media literacy and digital citizenship Benchmarking of children's digital citizenship and media literacy and evaluation of efficacy of the curriculum Integration of digital citizenship lessons into existing school curriculum Facilitation of in-class discussions and activities by educators Facilitation of reflection and consolidation of ongoing learning	Number of schools (4), teachers trained (8) and students between ages 6 and 16 (200) participating in the intervention Number of sessions conducted: - KS1: 6 sessions - KS2: 12 sessions - KS3: 12 sessions - KS4: 10 sessions Number of sessions observed: - KS1: 6 sessions - KS2: 12 sessions - KS3: 12 sessions - KS4: 10 sessions Completion of digital citizenship lessons and activities by students at school and for homework Discussion of the activities and issues in digital citizenship between students and parents (as reported back by students) Development of digital literacy skills and critical thinking abilities among students as evidenced by their more thoughtful decision-making in post-tests
ASSUMPTIONS		

OUTCOMES		IMPACT
Short/mid-term	**Long-term**	
Evidence of media literacy improvements in four key areas: Enhanced digital privacy and online identity management, demonstrated by improved understanding of privacy settings and cautious behaviour online. Improved media balance and emotional wellbeing, evidenced by the development of strategies for effective screen time management and recognition of the emotional impact of digital media consumption. Increased awareness of digital ethics and respectful online behaviour, highlighted by a better understanding of online etiquette and ethical conduct. Strengthened critical literacy skills, demonstrated by the acquisition of basic fact-checking techniques or knowledge of who to approach for credible fact-checking, identification of unreliable sources online, and the beginning of questioning the credibility of digital content encountered. Engagement in discussions and activities related to digital citizenship topics and initial exploration and experimentation with digital tools and platforms in a safe and responsible manner.	The establishment of a supportive classroom and whole-school environment conducive to open and critical digital citizenship education. The integration of digital citizenship principles into daily routines and decision-making processes. The sustainable adoption of critical media literacy practices, including: a) the ability to verify information, b) the ability to discern credible sources, c) the ability to recognise harmful actors online, d) the ability to classify sources of misinformation and disinformation and e) the ability to analyse digital ownership and content critically. The establishment of healthy media habits and practices, promoting mental and emotional well-being. Development of a supportive network of peers, educators, and parents committed to fostering digital citizenship skills and values.	Contribution to broader societal changes, such as reduced online risks, increased digital literacy rates, and a more informed and engaged digital citizenry. Enhanced digital citizenship skills, leading to safer and more responsible online behaviour among students, potential reduction in online bullying and other harms. Reduction in circulation of fake news, misinformation and disinformation amongst young citizens and adults. Consistent application of ethical principles and respectful behaviour in online interactions and digital communication. Acquisition of confidence to advocate for digital and civic rights, online activism, privacy protection, and responsible online participation. Integration of digital citizenship principles into daily routines and decision-making processes. Ability to navigate the resources and controversial aspects of AI in the workplace as older students transition to young working adults

EXTERNAL FACTORS

ASSUMPTIONS

The prior experience of students in relation to media and new technologies influences their receptiveness to new learning in the digital citizenship intervention.

The level of students' engagement in facilitated discussions and self-reflection regarding their digital media-related thought processes and behaviours directly influences the development of differentiated digital metacognition[2] within the digital citizenship intervention (Kuhn, 2022; Drigas et al., 2023).

Parents'/ significant adults' and teachers' dispositions, prior experiences and confidence with media and new technologies impact students' engagement with a digital citizenship intervention.

The existing whole-school practice and orientation to critical media literacy and new technologies influences the effectiveness of the digital citizenship intervention.

The combination of attention, respect, and classroom time devoted to the materials influences students' learning outcomes.

The pedagogic approach of the teacher to the intervention and to assessment of learning shapes students' understanding and application of digital citizenship and critical media literacy concepts.

The pre-existing dispositions of students (such as curiosity, creativity, civic-mindedness, resourcefulness, and self-reflection) affect their ability to navigate and engage with the educational content provided.

The support and guidance provided by school leadership, educators and peers influence the effectiveness of the curriculum.

The greater the freshness, relevance and cultural affinity of the curricular materials in tech-speak, phrasing, images and language, the more engagement from students and hence the better the learning will be.

[2] Digital metacognition refers to the ability to reflect on and understand one's own thought processes, assumptions, and behaviours related to digital media usage, often cultivated through facilitated discussions and self-reflection.

EXTERNAL FACTORS

Well-resourced organisations making relevant and up to date curricular materials for digital citizenship.

Socioeconomic conditions of students and families, which impact access to technology and internet resources.

Socioeconomic conditions of schools: pressures on time, and resources in schools make them more or less capable of integrating new and emerging technologies in the classroom and new and emerging pedagogies for teaching.

Government policies and regulations related to privacy and data, freedom of speech and expression, hate speech, media ownership, intermediary liability, online safety and digital literacy education.

National and local cultural attitudes and norms regarding digital use and online behaviour.

Cultural attitudes and norms regarding human rights and equalities more widely (for instance with regard to issues such as misogyny and racism).

Legacy media and social media landscape, ownership and context: what information practices around privacy and types of language have been normalised.

Prevalence of disinformation, misinformation and/or digital risks and harms in broader society.

3 Delivery Model

At the outset of the project, the website of Common Sense Media[3] was already online and accessible to schools or individual teachers. Therefore, we began our research with the creation of a robust and replicable baseline evaluation grid and digital dilemma-based set of pre- and post-intervention resources to assess the current knowledge, behaviours, skills, and dispositions of students from different key stages in the UK. Along with the pre-tests we developed scoring rubrics for students from the Key Stages that participated in our project. The aim of the rubric was to create a tool to assess the progress of the students and the outcome and impact of the digital citizenship intervention contextually and systematically.

3.1 Evaluation materials

This section provides insights into the development, testing, and application of assessment tools aimed at gauging students' digital skills, knowledge, and dispositions in the context of digital citizenship education.

3.1.1 Common Sense digital citizenship lessons

Description of the content: Common Sense Media digital citizenship lesson plans consist of curated educational materials designed to address various aspects of digital citizenship, including digital privacy, media balance, critical literacy, and digital ethics. The content includes interactive activities, handouts, class discussions, and real-life scenarios tailored to different age groups and key stages. Examples of the lesson plans and handouts can be found in Annexes 3 and 4.

Aims and learning objectives: The primary aim of the Common Sense Media digital citizenship curriculum is avowedly to equip school students with the knowledge, skills, and dispositions necessary to navigate digital environments responsibly and ethically. Learning objectives include fostering critical thinking skills, promoting responsible online behaviour, and cultivating digital metacognition.

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3 **https://www.commonsense.org**

Development: The lesson plans that we were assessing had been developed collaboratively by educational experts at Project Zero, a more than 50-year-old research centre at the Harvard Graduate School of Education and Common Sense Media. The content had been iteratively refined to ensure alignment with educational standards and relevance to students' experiences in the US and UK.

Testing/Piloting: Prior to implementation, the lessons underwent rigorous testing and piloting phases. Feedback from teachers, students, and experts was collected and used to refine the content and delivery methods.

Application/Use: The lessons were delivered by trained teachers across multiple schools, with activities adapted to suit the needs and preferences of each classroom. Teachers facilitated discussions and guided students through interactive exercises to ensure engagement and understanding.

Evaluation: The effectiveness of the Common Sense Media digital citizenship curriculum was evaluated through the development and implementation of pre- and post-tests, classroom observations, focus groups with students, and interviews with teaching staff. Measurable outcomes include changes observed in students' attitudes, knowledge, dispositions, and behaviour related to digital citizenship (discussed in section 6 Key Findings). The interviews and focus groups provided us with qualitative insights into how, both teachers and students of all ages, experienced the intervention. Our thematic analysis of the qualitative data from interviews, focus groups and classroom observations informed our feedback for the refinement of the Common Sense Media materials whilst also allowing us to gain a better understanding of the impact which the intervention had on the civic learning, knowledge and dispositions of students and the educators' facility in teaching the topics and facilitating their students' learning.

3.1.2 Pre- and post-tests: Civic and digital dilemma-based scenarios

Description of the content: The pre- and post-tests consisted of multiple choice scenarios involving decisions to measure digital citizenship. These were designed specifically to assess students' knowledge, skills, and dispositions related to digital tools, environments, and decision-making in order to evaluate the success of the digital citizenship intervention in several key areas of digital citizenship, including

1) Digital privacy and online identity management

2) Media balance and emotional wellbeing

3) Critical literacy

4) Digital ethics and respectful online behaviour.

By presenting the school students in our sample with relevant online situations and scenarios, we aimed to assess their ability to navigate these challenges while demonstrating the desired characteristics outlined in the rubric (explained in the following section).

Aims and learning objectives: The aim of the pre-tests was to gauge students' pre-existing knowledge, skills, attitudes and dispositions towards digital tools and technologies, environments (including news sites, gaming and social media), and the related decisions and social interactions both on and offline. This baseline appraisal, when compared with the scores from the post-tests, helped us to estimate the effectiveness of the content, pacing, form and delivery of the Common Sense Media digital citizenship materials in promoting critical, responsible, and safe digital behaviour.

Development: The scenarios were developed by the LSE project team Professor Banaji and Dr Abades-Barclay, who have decades of educational expertise, in collaboration with the project's experienced advisory board[4], and two young adult research assistants (Master's students with specific knowledge within the media and communications field). Content was informed by a scientific literature review and input from stakeholders. Pre- and post-intervention scenario-based quizzes were structured in such a manner that there was a clear parallel between the questions, presenting age-appropriate and engaging scenarios that differed in their content but tested the same themes or dispositions.

Our post-tests followed the same scoring grid as the pre-tests, allowing for a systematic and objective evaluation of students' responses. We specifically tailored these dilemmas to be cutting edge about the latest technologies, tools and digital language in the UK, relevant to local children and childhoods, engaging in terms of young people and children's interests and emotions, challenging practically, intellectually and ethically, and age-appropriate for both primary and secondary students in the different key stages.

We linked some items in the digital dilemma scenarios to the curriculum materials in the intervention. We also ensured that some of the scenarios encompassed areas that the materials cover in less detail or where the materials might need to be updated, simplified or strengthened. For the Year Two students (Key Stage 1), the scenarios we envisioned utilised concepts such as balancing screen time with other non-digital leisure activities, recognising online safety concerns around giving out personal data (taking appropriate action eg, closing pop-ups and/or telling an adult if asked for personal data online), and evaluating image/news authenticity with a view to decisions around accuracy, mis-selling and misinformation/online fraud. We gave the Year Five students (Key Stage 2) scenarios that allowed us to evaluate their ability to verify information, distinguish source credibility, measure responsible and consensual sharing of content online and recognising potential online risks. The digital dilemmas and scenarios targeted at Year Five students (Key Stage 2) also had a special focus on online games and on treating others respectfully and kindly.

[4] The advisory board membership for our project was Ms Bethany Marris, Professor John Potter and Dr Mariya Stoilova.

For the secondary students in Year Eight (Key Stage 3) and in Year Ten (Key Stage 4), our evaluation scenarios involved age-appropriate, every-day online dilemmas from a range of topics with direct relevance to their cohorts' emotional, social and civic development. For instance, the item that explored the students' knowledge and skills in relation to screen media use and well-being focused on the theme of time management and peer pressure, specifically, exploring how children and young people between the ages of 11 and 15 prioritise their academic responsibilities (presentation preparation) versus friendships and external influences (peer pressure to watch a TV show). Other items tested respect, consent, and healthy relationships online; and online hate speech and social responsibility amongst others.

Testing/Piloting: Prior to implementation, the scenarios were tested and piloted with children and young adults including our research assistants, and project advisors to ensure relevance, engagement, and alignment with educational objectives.

Application/Use: The pre- and post-tests were administered to students before and after the implementation of the Common Sense Media digital citizenship lessons, scored directly on computers and tablets by the LSE Team using the platform Qualtrics. Students responded to multiple-choice scenarios and self-evaluation questions, providing insights into their digital knowledge, skills, and dispositions. The post-test 'digital dilemma' based scenarios were followed up with focus groups with the students and individual interviews with the teachers.

Evaluation: Through careful analysis of their responses, we gained valuable insights into how learners' dispositions influenced their decision-making processes and overall effectiveness in utilising educational materials. By analysing changes in responses between pre- and post-tests, we were able to track the development of students' dispositions over time and assess the impact of educational interventions on particular areas of learning as well as the areas in which the intervention needed strengthening. This approach provided a comprehensive framework for evaluating learners' readiness to engage with digital literacy materials and their capacity to make responsible and informed choices in online environments as well as the relevance and accessibility of the materials for particular groups of learners.

3.1.3 Rubric-based evaluation and scoring grid

Description of the Content: The teaching and learning rubric (see Annex 1) complemented the scoring grid, containing guidelines that described in detail the criteria for assessing the baseline evaluation. Additionally, the rubric provided explanation of the different levels of achievement (Early Stage, Emerging and Proficiency) with detailed descriptions of each level.

The rubric-based evaluation assessed students' digital skills, knowledge, and dispositions across key areas of digital citizenship, including privacy management, media balance, ethical behaviour, and critical literacy. Additionally, it included criteria and indicators designed to assess students' digital dispositions including characteristics such as playfulness, curiosity, critical thinking, and resourcefulness. The evaluation aims to measure the presence and development of these dispositions over time.

Aims and learning objectives: The aim of the evaluation rubric linked to the pre- and post-tests was to evaluate sustainability and contribution of Common Sense Media's digital citizenship curriculum and materials to the development of children and young people's essential digital citizenship skills, knowledge, and dispositions among students. Learning objectives include fostering critical and mindful digital dispositions and assessing the impact of the materials on decision-making processes in key digital citizenship areas with a specific emphasis on misinformation and disinformation.

Besides the aim of recording the children's digital knowledge and skills prior to encountering the Digital Citizenship Curriculum from our charity partner Common Sense Media, the baseline evaluation placed special emphasis on observing the 'digital dispositions' revealed by how the children and young people approached their digital interactions. These dispositions, which we came up with as a team based on a reading of the scientific literature, previous projects and experience[5], included:

- Playful and Creative,
- Curious and Information Seeking,
- Participatory and Civic Minded,
- Critical and Self-Reflective,
- Caring and Mentoring, and
- Resourceful.

[5] Our approach drew inspiration from Banaji's typology of active citizenship (in Banaji and Mejias, 2020), particularly the insights provided on young people's dispositions towards citizenship and how they influence civic engagement and behaviour. While specific research on children was not detailed in the book, the concepts discussed served as a foundation for extrapolating relevant dispositions for our study.

Development: The rubric was collaboratively developed by Professor Banaji and Dr Abades-Barclay and was based on Common Sense Media themes and key areas of digital citizenship.

Testing/Piloting: The rubric went through several iterations to ensure clarity, reliability, and validity in assessing students' digital skills, knowledge, and dispositions.

Application/Use: The rubric was applied during pre- and post-intervention evaluations, and provides a systematic framework for assessing students' progress in digital citizenship. It complements the scoring grid used for pre- and post-tests.

Evaluation: The effectiveness of the pre- and post-tests at capturing the impact of the intervention on student's media literacy and digital citizenship was evaluated through an analysis of student assessments using the rubric, as well as through focus groups with children. This helped us in assessing strengths and areas for improvement in the Common Sense Media materials delivered and in fine-tuning the scenarios and choices in the pre and post-intervention quizzes. Additionally, we used the rubric to support our evaluation of the learners' dispositions, as outlined in Annex 1. The pre- and post-tests incorporated scenarios designed to evaluate both knowledge and dispositions, including characteristics that learners have and can develop further such as self-reflection and curiosity. For example, scenarios like the ones presented in Annex 2 allowed us to observe how students responded to dilemmas requiring critical thinking, creativity, and civic-mindedness. Through careful analysis of student responses, we gained valuable insight into how learners' dispositions influence their decision-making processes and can be used to enhance overall effectiveness in utilising educational materials. By analysing changes in responses between pre- and post-tests, we were able to track the development of students' dispositions over time and assess the impact of educational interventions on fostering healthy and critical digital citizens. This approach provided a comprehensive framework for evaluating learners' readiness to engage with digital literacy materials and their capacity to make responsible and informed choices in online environments.

3.1.4 Teacher training and classroom observations

Description of the content: This material encompasses the training sessions provided to teachers prior to implementing the Digital Citizenship Curriculum, along with the classroom observations conducted throughout the teaching process in each classroom and school. The training sessions aimed to familiarise teachers with the curriculum content and equip them with strategies for effective lesson delivery. Classroom observations were conducted to assess the dynamics of the learning environment, including pedagogy, comprehension levels, and the appropriateness of teaching materials.

Aims and learning objectives: The primary aim of teacher training was to ensure educators were adequately prepared to deliver the Digital Citizenship Curriculum, emphasising principles of digital literacy, online safety, and responsible technology use. Learning objectives included enhancing teachers' understanding of the curriculum content, promoting diverse teaching styles, and facilitating effective classroom dynamics.

Development: The training sessions were developed following principles outlined by Common Sense Media and delivered by the co-investigator and in collaboration with the research officer, ensuring alignment with project goals and educational best practices. The observation protocols were developed by the principal investigator and conducted by the research officer and research assistant when lessons overlapped.

Testing/Piloting: The sessions followed the structure established by Common Sense Media in the US. Additionally, the co-investigator had experience delivering teacher training sessions and the principal investigator is also a trained teacher of English and Media.

Application/Use: The teacher training materials were delivered to teachers across different key stages at participating schools. Lesson plans and accompanying slides were used during classroom instruction to facilitate learning. Classroom observations provided insights into teaching methods, comprehension levels, and the appropriateness of instructional materials.

Evaluation: The effectiveness of teacher training and classroom observations was evaluated through feedback mechanisms and analysis of classroom dynamics. Observations allowed for the identification of effective teaching methods and areas for improvement, while feedback from teachers informed adjustments to training materials and delivery methods.

3.2 Assessment criteria

The assessment criteria were based on our scoring rubric (see Annex 1) which was designed to evaluate key digital citizenship areas across four key areas including digital privacy and online identity management, media balance and emotional wellbeing, digital ethics and respectful online behaviour, and critical literacy. These areas encapsulate the Common Sense Media themes: Privacy and Security, Digital Footprint and Identity, Cyberbullying, Digital Drama, and Hate Speech, Critical Literacy, and Relationships and Communication. The rubric outlined proficiency levels and provided clear criteria for assessing students' progress through the pre- and post-tests.

There are three different learning stages on the rubric used to assess the pre- and post-tests. At the Early Stage (0-4 points out of 10), students demonstrated limited understanding and application of the specified element, requiring significant support and guidance in skill development. In the Emerging Stage (5-7 points out of 10), students showed an evolving understanding of the specified element, with evident progress and readiness for further development and guidance towards consistent application. Lastly, at the Proficient Stage (8-10 points out of 10), students demonstrated a proficient understanding of the specified element and consistently acted accordingly, showcasing recognition, contemplation, self-efficacy, and action. Data was collected through the pre- and post-tests. Overall, the rubric provided a structured framework for evaluating digital citizenship intervention materials, delivery and effectiveness, and for assessing strengths and areas for improvement.

3.3 Data analysis

Analysis of our data involved both quantitative and qualitative methods to assess the effectiveness of the digital citizenship curriculum. Quantitative analysis included hypothesis testing and calculation of p-values to determine statistical significance between pre- and post-test scores, which provided us with insights into improvement across different year groups and in relation to each key theme in the materials.
We also utilised comparative analysis to examine the percentage changes within and between classes, offering further understanding of the curriculum's impact in different pedagogic conditions and environments. We used different data visualisation techniques such as figures (bar graphs) and tables to present findings. We conducted qualitative thematic analysis of the teacher interviews exploring various aspects of curriculum implementation, this offered us nuanced insights into its effectiveness and reception. The focus group data were also organised and analysed through themes including the reception of lessons, experiences, and perceptions of the digital citizenship lessons.

4 Expected Outcomes: Successes and Challenges

4.1 What went well?

4.1.1 The significance of rubrics in digital citizenship intervention evaluation

The combination of teacher training, quantitative baseline and post-evaluation, taught lessons with the students' regular teachers rather than outsiders, classroom observations with fieldnotes, and evaluator rubrics for scoring the scenarios, allowed us to evaluate the appropriateness of the Common Sense Media materials in addressing the specific online needs of each Key Stage within the UK school system. The multi-method approach helped us to triangulate data and to combine important quantitative and qualitative data points (initial scores and geographic location or number of students on free school meals or teacher subject background and experience for instance) to analyse and assess the impact of the digital citizenship intervention in different types of schools and in classrooms with different types of pedagogic styles. The rubric and baseline evaluation enabled us to produce customised and easily replicable assessments, which served as essential instruments to evaluate the impact and effectiveness of similar media literacy interventions or digital citizenship curricula in a constantly changing digital environment.

While there might be only one correct response to the question 'should I give my password or address to a stranger online', moving children and young people through varying levels of recognition of and countering misinformation and disinformation requires robust general knowledge and critical thinking. However, assessing critical media literacy skills poses challenges due to the complexity and ubiquity of misinformation and disinformation in digital environments. The development of a rubric provided a standardised method for evaluating students' (and potentially also adults') critical thinking abilities in this sphere.

4.1.2 Adaptable teaching approaches and insightful qualitative analysis

Some degree of flexibility in lesson delivery built into the way we presented the curriculum (rather than in the curriculum materials themselves) enabled participating teachers to explore diverse teaching styles. Observations of these teaching styles in concert with the changes in scores in post-tests, allowed us to distinguish effective methods and the impact of the intervention in contrasting school environments. We encouraged teachers to use their own initiative to change the sequencing of lessons in the curriculum and/or to change the pacing of lessons which were otherwise too crowded with content. Thus, in our intervention we addressed diverse student learning needs that might not have been catered to in the materials themselves, enhancing the digital citizenship intervention's potential impact, and revealing existing gaps in curriculum and/or delivery.

Qualitative methods, coupled with our delivery model, enabled us to delve into enablers (what helps learning and retention) and barriers (what hinders learning and retention) for media interventions that aim to increase digital literacy and improve digital citizenship.

Classroom observations and interviews with the participating teachers illuminated challenges and successes beyond the actual structure and/or content of the curriculum materials. This points to a mix of 1) classroom and cohort environments; 2) whole-school practices and 3) national or regional pedagogic cultures as crucial factors in the success or failure of media literacy outcomes. Our analysis of the qualitative data (see below) provides a comprehensive understanding of impediments and facilitators, offering insights into logistical challenges during the intervention.

4.2 Challenges

We encountered three distinct categories of challenges that can impact the implementation and outcomes of digital citizenship interventions:

4.2.1 Technological challenges

- We found that rapid technological advancements can become a barrier to the curriculum materials as hardware and software may outpace the development and evaluation of media literacy materials, making it challenging to address emerging issues and trends effectively. It is important that the incorporation of new technologies (eg, games, virtual environments, AI) and associated digital issues are addressed and integrated into the lessons.

- Despite our assurances to teachers that their digital competencies were not being evaluated, teachers who were not already experienced digital educators felt that they were not up-to-date with emerging digital trends.

4.2.2 Pedagogic and engagement challenges

- In the secondary schools we worked with, class organisation around single subjects and test-based ability groupings which are now common across many UK schools can be seen to have affected students' confidence and participation levels. This was particularly evident in unmotivated lower-set and/or gender-imbalanced classes, resulting in inhibited class discussions and diminishing the effectiveness of learning materials and the intervention.

- The lessons which ranged widely over the dangers and challenges of the online sphere, including those around hate speech, the navigation of gender-based trolling, violence and sexting often demanded significant levels of openness and vulnerability from both teachers and students, influencing both the extent and content of input and engagement in lessons.

- The influence of peer pressure affected the feedback of students during the focus groups.

4.2.3 Logistical challenges

Out-of-school experiences (non-school, household, student background):

- A key challenge emerged from the varying digital backgrounds among students. This was particularly evident in primary education. Children from urban or inner-city households where technology is ingrained in their daily life, exhibit a learnt enthusiasm and affinity for digital tools. Conversely, those from less digitally immersed backgrounds, particularly those in rural and suburban households, face a steeper learning curve, affecting their engagement with digital citizenship programs. In School A, inner city, notable observations were made regarding their interaction with digital tools. When we conducted the pre-tests, some students raised concerns about being recorded when they noticed the tablet's camera, indicating a level of digital awareness around privacy that we found worthy of note. Additionally, during focus groups, Year 2 students spontaneously brought up questions about Elon Musk, demonstrating their knowledge and exposure to digital cultures and tendencies.

- Household disparities in digital experiences significantly influenced the students' comprehension levels, this was especially noticeable in primary education settings. Students from intensive digital use households demonstrated greater ease with digital concepts, while those from less tech-savvy backgrounds struggled to grasp key skills and concepts. This discrepancy underscores the potential impact on students' participation and benefits from digital literacy initiatives[6].

[6] It should be noted, however, that our observations in conjunction with the digital use questions on our pre-tests (cf. Annex 2) suggest that children from households where the technologies exist but where the adults make considered decisions to regulate use of digital technology, showed little difference in their comprehension of the principles around privacy, fairness and healthy digital balance or disinformation from their tech-savvy counterparts. It was, rather, children from households where neither adults nor children had access to many digital tools and their attendant terminologies and children from households where there are a surfeit of digital technologies but minimal supervision in using them that seemed least easily engaged by the Common Sense Media curriculum materials and least aware of the principles of digital citizenship.

In-school experiences (school practices and cultures):

- The emphasis on standardised testing in some classrooms, driven at times by teacher anxiety and/or the need to manage lower set learners, restricted the exploration of broader digital literacy topics and overlooked important discussions on the evolving digital landscape. Despite the materials' real-world relevance which was praised by all the teachers, a non-dialogic teaching style and a highly controlled one risks overlooking current trends and evolving digital landscape discussions amongst local groups of students. For instance, AI topics easily get omitted as too complex, hindering exploration of AI's growing significance in students' lives. Overall, teaching to the test lacked personalisation and hindered the development of critical, self-reflective, and resourceful student dispositions, limiting their holistic growth. Some teachers experienced pressure to address the numerous examples provided in the materials. Although these suggestions were optional, some teachers felt compelled to cover everything, thereby impacting the inclusion of other important aspects of the lesson. This underscores the challenge of maintaining a balance between comprehensive coverage and instructional pace, potentially prompting teachers to accelerate the lesson, thus missing important discussions with students.

- Varied technological integration in secondary schools impacted the lesson delivery and student experiences while smart classrooms enhanced online civic education while addressing the digital divide and cultivating digital skills amongst students irrespective of socioeconomic backgrounds. In School C, we observed a noticeable disconnect between the teaching methods employed and the digital citizenship topics being covered. This was exacerbated by limited classroom technological integration. For instance, during a lesson an online article was read aloud from the projector. This posed visibility challenges for the students, straining their eyesight, and hindering comprehension. On another occasion, a teacher used the overhead projector to augment fragments from a printed handout for class discussion; but the visibility of the material was compromised. This amplified the students' difficulty in engaging with the material. It contributed to low engagement levels observed during the lesson. This observation underscores the critical role of effective classroom technology integration in facilitating engaging and accessible lesson delivery.

- School cultures influenced lesson delivery: the schools that emphasised digital media literacy and online safety in their curriculum positively embraced interventions, showcasing exemplary practices like student digital leaders and specialised teacher training, crucial for addressing gaps in understanding and fostering insightful discussions.

5 Evaluation Methodology

In the summer of 2023, after an extensive ethics process, scientific literature review, methodological training and the drafting of research instruments, the research began in four London schools involving:

1 Teacher training sessions for delivering a pre-existing Digital Citizenship Curriculum

2 The development, piloting and the administration of original scenario-based evaluations on Qualtrics across 200 students in four schools (pre-tests)

3 Classroom observations and fieldnotes during the media literacy intervention lessons

4 The development, piloting and administration of original scenario-based post-teaching evaluations on Qualtrics across 200 students in four schools (post-tests)

5 Focus groups with the students

6 In depth interviews with the teachers.

The research process included rigorous ethical procedures: informed consent with headteachers and teachers involved, and DBS checks before the baseline evaluations, observations and focus groups. We utilised an opt-out approach for parental consent, where forms were sent out to schools who then followed their standard ethics procedures with children and parents/carers regarding interventions, teaching and trips.

Quantitative data which was stored safely and securely without identifying individual child subjects included pre- and post-tests with n = 104 primary and n = 111 secondary students (n = 215), close to our stated aim of 100 students from primary and 100 from secondary. Pre-tests were administered a week before the lessons started with each cohort to establish the baseline media literacy and digital citizenship scores before the intervention. At primary level we worked with groups of six children at a time to enable plenty of attention to each child, while in the secondary cohorts we used larger class-group focus groups.

The intervention was delivered with the flexibility for teachers to pace and customise aspects of each lesson, with varied lesson plans in primary schools and different schedules in secondary schools (allowing for their different subjects and movement between classes). After completing the lessons, we conducted post-tests to compare to the baseline data from pre-tests; and generated qualitative data through interviews with teachers and focus groups with students. An analysis of this helped us understand the whole range of experiences and perceptions from training and delivery to reception and learning.

5.1 Measuring the impact of the project

The evaluation materials served as a crucial data source for us to assess the intervention impact in two ways. Firstly, pre and post-tests offered quantitative insights into students' pre-intervention and post-intervention knowledge, understanding, decision-making skills and dispositions on a series of key digital citizenship topics. Tailored statistical analyses, including measures of central tendency (see below), provide valuable insights into effects on behaviours and attitudes, allowing for thematic categorisation and comparative analysis. Data analysis revealed a significant improvement, exemplified by instances where students, previously inclined towards risky online behaviours, demonstrated enhanced risk assessment skills.

Qualitative aspects were assessed through classroom observations, focus groups, and teacher interviews, providing a triangulated and nuanced understanding of the intervention's impact on students' learning and dispositions. This complementary approach ensured a holistic evaluation, with many robust and easily replicable features.

5.1.1 Limitations

Below we list some of the limitations of the evaluation and challenges encountered when collecting and analysing data.

5.1.1.i Time limitations and the ceiling effect

A notable limitation of our intervention and therefore of the evaluation is the relatively short six-week duration in each school. Recognising that media literacy interventions may need extended periods of time for noticeable effects, the brevity of this period could impact the depth or persistence of observed changes. Further, pre-existing assumptions about digital media and about social media in particular among students aged 12 and above might result in a potential ceiling effect, reducing the intervention's pronounced impact due to their sense of their own familiarity with digital tools and spheres. Considering these factors is essential when interpreting evaluation outcomes.

5.1.1.ii Measuring 'hidden indicators' on attitudes/behaviours/dispositions

Our analysis of data generated in post intervention interviews suggests that the impact of the digital citizenship intervention extended beyond the classroom, with both primary and secondary students taking the classroom dilemmas and conversations home. In conversations with teachers, they noted that parents/significant adults had reported engaging discussions with their children. This shows an interest and engagement of the topic which was impossible to quantify. As noted by a year 10 teacher:

> I know a lot of them actually went home and discussed it because I had a lot of feedback from parents saying that a lot of them actually spoke to their parents about scrolling and the colours and everything.

Moreover, a year 8 student highlighted their increased confidence in assisting their parents and grandparents in navigating the digital landscape, although the full extent of the lessons in incentivising and capacitating them to apply newly acquired skills, here in the area of resisting misinformation, remains challenging to gauge. The student shared:

> I know my mum uses Facebook and WhatsApp and all, and she's in these group chats that send fake news to each other. But they don't necessarily think it's fake news; they think it's real. So I'm trying to help my mum find out fake news on Facebook and all that because she believes most of it. People think, oh, news is news, so it's real and it has to be real.

Likewise, teachers also noted the strong positive engagement, as students expressed enjoyment and actively shared their experiences during class, indicating the intervention's resonance within the cohorts. Similarly, some students in the focus groups reported observable behavioural changes such as no longer accepting cookies and turning off attention grabbing social media 'push notifications' that might interfere with concentration.

5.1.1iii More schools

Each school, with its unique culture and practices, yielded valuable data. Exploring more schools from other diverse regions in the North, Southwest and Northeast of England could have enriched the insights even further, particularly with regard to localised media cultures and concerns.

6 Key Findings

1 **The positive Impact of the Common Sense Media digital citizenship intervention and consistent improvement across schools**: The evaluation of Common Sense Media digital citizenship lessons and materials demonstrated a positive impact on both primary and secondary students: 60 per cent of students scored higher in the post-intervention tests than they had in pre-tests. As can be seen in table 3 and in figure 1, three of the four year groups transitioned in their media literacy level (based on the digital citizenship rubric and scoring scheme we created, see Annex 1). Additionally, statistically significant improvements were observed across three of the four key stages. This consistent improvement across year groups (figure 1) and schools (figure 2) underscores the impact of the intervention on students' digital literacy development.

Table 3: Improvement in Media and News Literacy Skills, Pre- and Post-Intervention, by Year Group

Year Level	% of Students that Showed Improvement in the Post-test	Average Pre-Test Score (out of 10)	Average Post-Test Score (out of 10)	Difference	Transition of Media Literacy Level	Statistical Significance[7]
Year 2	65%	7.2	9.0	1.8	Yes	Yes
Year 5	74%	7.8	8.4	0.6	Yes	Yes
Year 8	52%	8.5	9.2	0.7	Yes	Yes
Year 10	46%	7.6	7.8	0.2	No	No

[7] Statistical significance determined using hypothesis testing and determined based on p-values, with a significance level of $\alpha = 0.05$.

Figure 1: Comparison of Pre- and Post-Test Scores across Year Groups

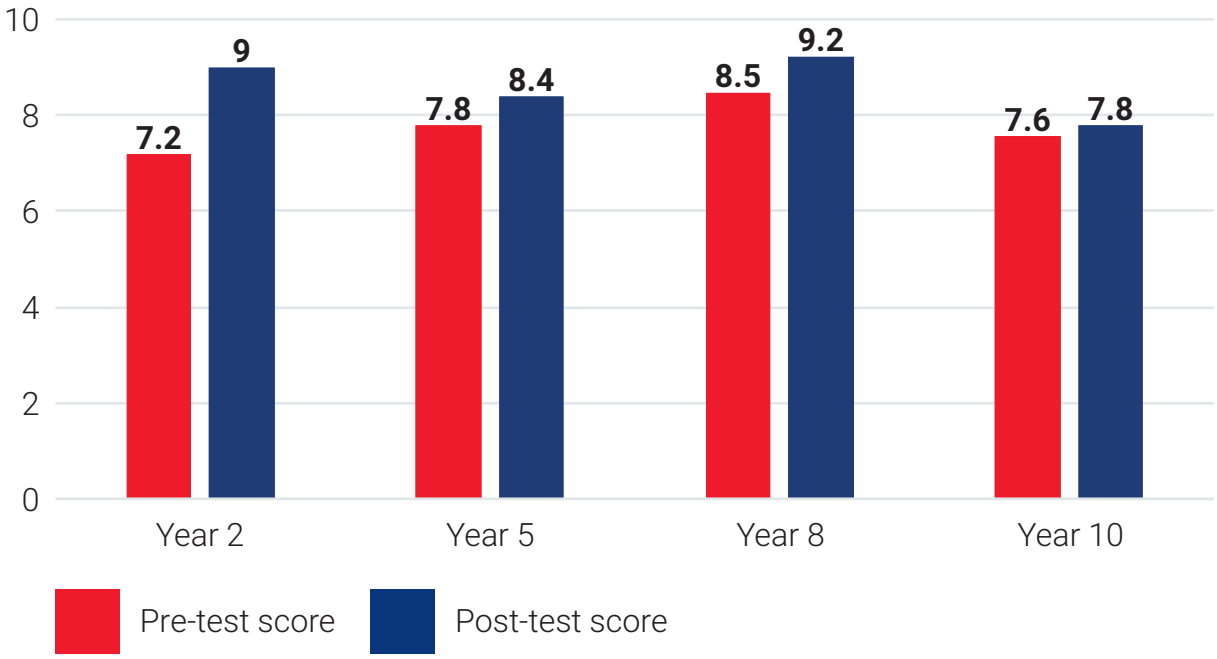
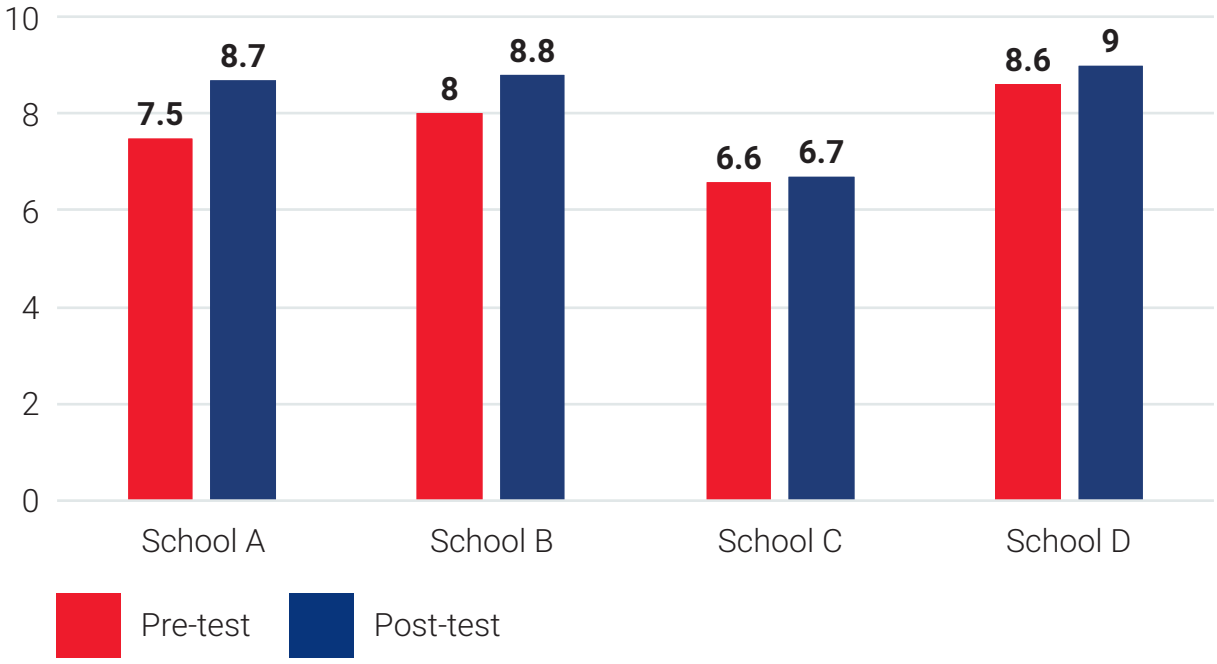


Figure 2: Average Pre- and Post-Test Scores across Schools



2 Many of the students expressed a **desire for more in-depth digital citizenship-related knowledge**, recognising the power it holds over their life and well-being.

Reflecting on their experiences, a Year 10 student remarked that:

> We don't really see how scary things are online until we get taught about it deeply.

Additionally, Year 8 students emphasised the importance and relevance of the lessons:

> Since everyone uses the internet now, it's important for the younger generation, us, to know how to take care of ourselves online.

> I think it was also very relevant to us because we're in year eight, we've newly gotten our phones and it's nice to learn about how to prevent bad things happening to you online.

Other students noted the broader impact that the lessons would have on their families, as a Year 8 student noted:

> Learning this would help us to help our parents because sometimes they always ask, oh, how do you do this? How do you turn on that? How do you get rid of this? So, I think that [learning about digital citizenship in school] would have an impact on our parents' life and our lives.

3 **Positive reception and engagement**: The positive learning facilitated by the lessons was supported by **engaging content**. The analysis of qualitative data revealed helpful and motivated feedback from both teachers and students, with vocal emphasis on the intervention's interesting and engaging content. Additionally, we were told that the materials were felt to be culturally sensitive and relevant to the diverse students learning needs and lived experiences. The intervention and thematic concepts of lessons were deemed of significant curricular importance by teachers and as useful tools for life skills and academia by students. As noted by a Year 8 student:

> I found it interesting, and I found it like… I had something to learn.

A Year 5 teacher noted that:

> The students really did enjoy the learning and there's certainly been a lot of questions and thoughts that have come from the learning.

4 Factors influencing resistance to misinformation and disinformation:

- Prioritisation of online safety in curriculum: The prioritisation of online safety in the curriculum further facilitated positive outcomes. Schools emphasising digital literacy and online safety, with a pre-established foundation and a commitment to early embedding of digital literacy skills, created effective learning environments. Collaborative learning environments and meaningful discussions significantly contributed to positive outcomes, demonstrating higher resilience to disinformation. Students in schools that already emphasised digital literacy and online safety in their existing curriculum demonstrated higher resilience to scams, misinformation, and fake news. This was particularly evident in School D, where the average score of KS3 and KS4 in the pre-tests was 8.6 and 9.1 in the post-test. Likewise, significantly improved outcomes were observed in schools with a culture and practices prioritising online safety topics. The themes of the baseline evaluation that tested vulnerability and resistance to misinformation and disinformation had the highest rates of improvement, showing the necessity and importance of introducing digital citizenship lessons in this area at all key stages. Even in schools with no prior curricular engagement with these topics, students made small gains in these areas through the intervention.

Below are some of the improvements of students in the area of critical literacy:

Primary level:

As can be seen in Figure 3, below, the post-test demonstrates a substantial improvement in critical literacy skills among Year 2 students[8], with 72 per cent demonstrating proficiency in verifying information and understanding the consequences of spreading misinformation, marking a significant increase from the 8 per cent recorded at the early stage and 20 per cent at the emerging level in the pre-test, based on the assessment criteria and stages of development outlined in Annex 1.

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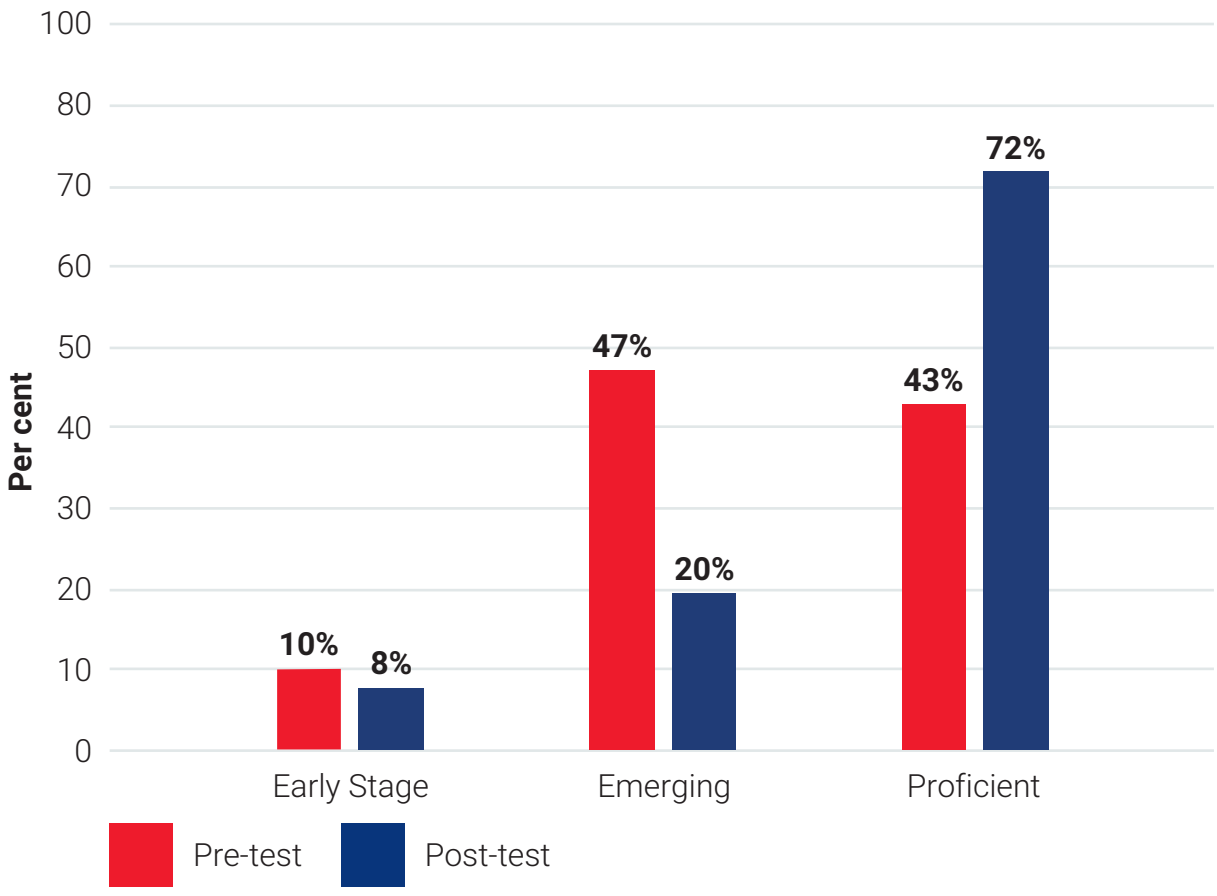
[8] To test initial knowledge and changes in KS1 students' critical literacy, we developed an age-appropriate assessment where they had to recognising computer-generated or manipulated images online. Students were given three options: a) NO (Accepting images at face value), b) DON'T KNOW (Showing hesitation in evaluating image authenticity) and c) YES (Demonstrating critical thinking by considering the possibility of computer-generated images). This aimed to initiate critical awareness towards technology, preparing them for future encounters with misinformation and disinformation. More detail in Annex 1.

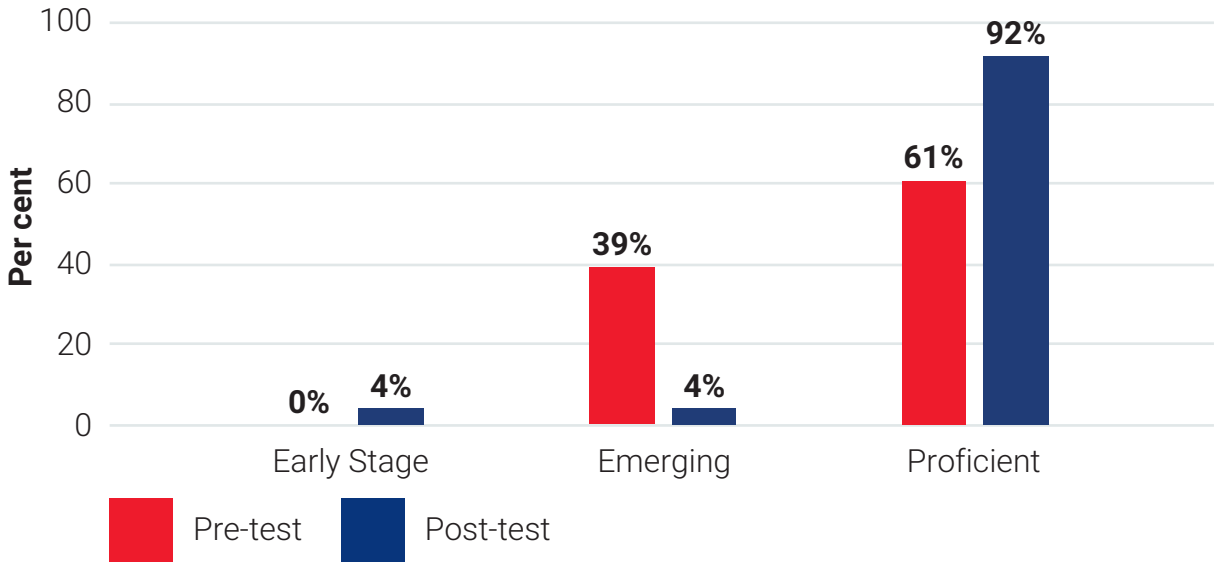
The stages of development can be outlined as follows. At the early stage, students are in the initial phase of exploration, possessing nascent knowledge of the specified digital citizenship theme (Digital Privacy and Online Identity Management, Media Balance and Emotional Wellbeing, Digital Ethics and Respectful Online Behaviour Critical Literacy). Their understanding and application of these skills are limited, requiring substantial support and guidance to progress further. As students transition to the emerging stage, they demonstrate a more engaged approach, showing consideration and active involvement in learning. Their understanding of the specified theme evolves noticeably, with clear progress evident and a readiness for continued development to fill gaps in knowledge and a seeking out of guidance towards its consistent application. Finally, students reaching the proficient stage exhibit a high level of competence, characterised by a deep recognition and contemplation of the specified theme. They demonstrate self-efficacy and take decisive action consistently, showcasing a proficient understanding and application of the skills acquired.

Figure 3: Critical Literacy Improvements Year 2



In the post-test quiz, 92 per cent of Year 5[9] students showed heightened skills in verifying information and understanding the consequences of spreading misinformation, a notable increase of 31 per cent from the 60 per cent recorded in the pre-test – as illustrated in figure 4 below.

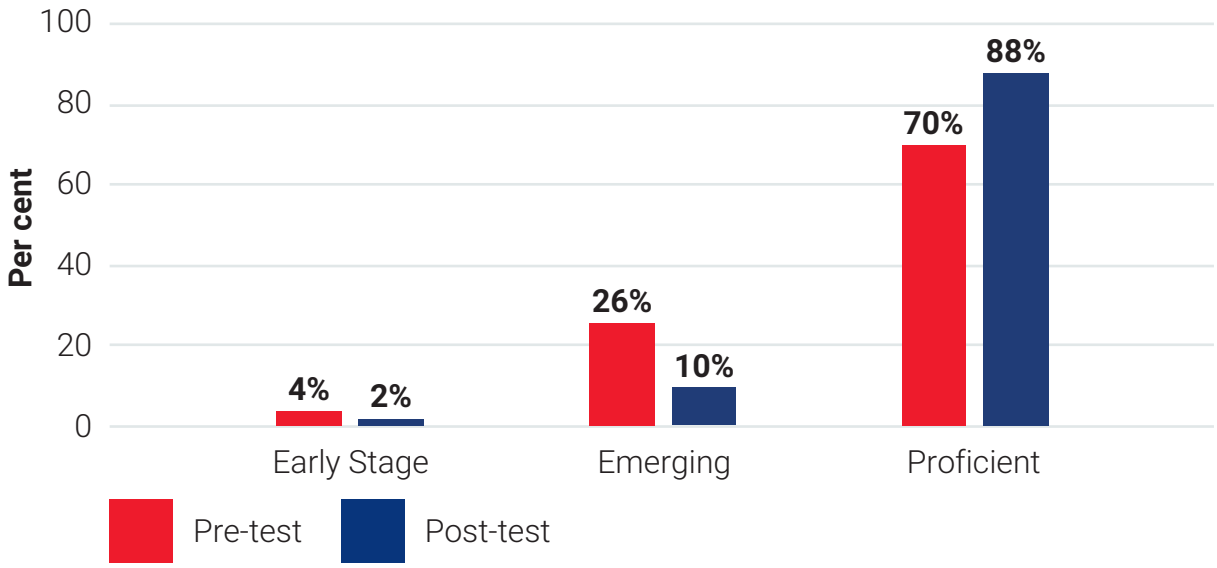
Figure 4: Critical Literacy Improvements Year 5



[9] To test initial knowledge and changes in KS2 students' critical literacy, we designed an age-appropriate scenario that evaluated the students' critical literacy in assessing online content. The options assess students' abilities to verify information and distinguish credible sources. Option a) reflects limited ability, relying on superficial factors. Option b) shows an emerging ability, considering additional information but may benefit from guidance. Option c) demonstrates a strong understanding, actively engaging in critical strategies and seeking assistance when needed. This assessment emphasises the importance of critically evaluating online content, consulting multiple sources, and seeking verification to combat misinformation challenges.

Secondary[10] **level**: Following the intervention, there was a remarkable enhancement in critical literacy skills among students, notably among those in the proficient category, with 88 per cent demonstrating proficiency in verifying information and understanding the consequences of spreading misinformation in the post-test, contrasting with 2 per cent at the early stage and 10 per cent at the emerging level. This improvement underscores the impact of teachers' use of stakeholder materials to instruct students on assessing the credibility of online content, thereby enhancing their skills in evaluation and navigation of digital information.

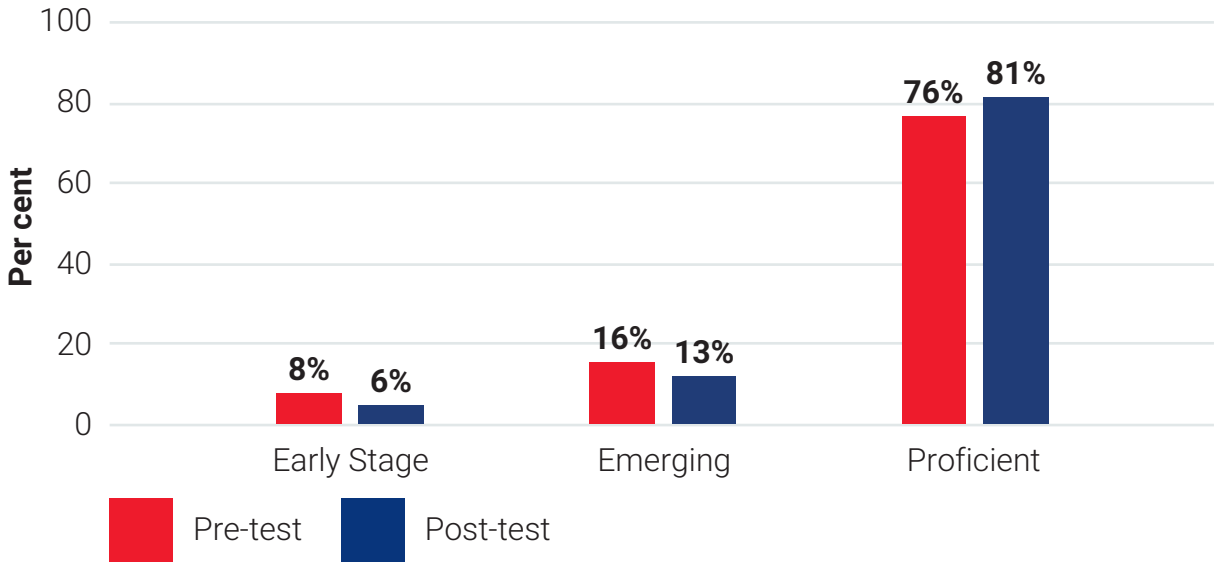
Figure 5: Critical Literacy Improvements Year 8



As illustrated in the figure 6 bellow, 81 per cent of the Year 10 students would carefully research and cross-check information, such as this piece of news, from multiple sources, before believing claims made in posts on news and social media platforms (showing a 10 per cent increase from the pre-test).

10 For secondary students, scenarios were designed to test initial knowledge and changes in News and Media Literacy. Options ranged from basic trust in news sources (score 0) to proficient understanding of fact-checking (score 2). The objective was to evaluate their ability to discern credible information and emphasise critical thinking and responsible information sharing.

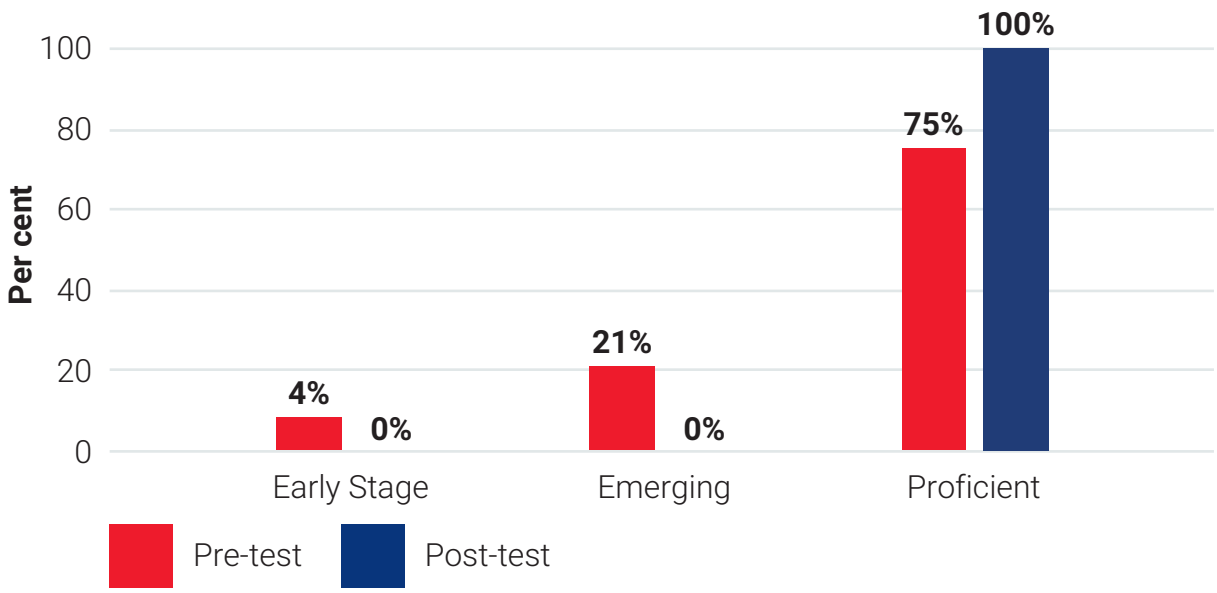
Figure 6: Critical Literacy Improvements Year 10



- **Scaffolding**: Scaffolding, both by experienced digital educators and peers with more experience, effectively guided students through responsible online behaviour. This scaffolding involved expertly delivered materials and facilitated in-depth discussions, allowing students not only to learn from teachers but also from each other and to correct mistakes collectively. Students in schools with a pre-established foundation in areas such as online safety demonstrated higher resistance and skepticism towards misinformation. Teachers played a crucial role in enhancing students' ability to ask probing questions, evident in enriched discussions and improved post-test scores. For example, primary school analysis revealed a significant impact of the intervention on students with lower initial knowledge levels. The materials, coupled with facilitated discussions, led to notable progress, with technologically savvy students enriching class discussions. Similarly, in School D's Year 8 classes, which had a strong foundation in online safety education from Year 7, there was a seamless progression, with over 46 per cent of students improving, and all seven tested themes showing enhancements. Vygotsky's scaffolding and zone of proximal development were crucial in these outcomes, aligning perfectly with students' evolving zones of proximal development. As can be seen in the figure 2 presented earlier, School D started with one of the strongest average scores, 8.6, and improved up to a 9, from the level of emerging to proficiency, highlighting the effectiveness of the intervention in fostering continuous growth and proficiency.

5 **Impactful role of teachers**: Experienced digital educators played a crucial role in enhancing students' resilience to misinformation. These educators not only imparted knowledge but also enriched classroom discussions by integrating real-world issues, drawing from their expertise, and leveraging the intervention to support students with varying levels of understanding. Lessons were further enriched through the incorporation of current affairs, including discussions on topics like AI and commentary on documentaries such as 'The Social Media Dilemma' as observed in School D, this provided students with a contextual understanding of online safety and media literacy. Figure 7 below illustrates the impact of a lesson on AI delivered by an experienced digital educator. In the scenario involving AI, in the post-tests, all school D year 10 students showcased proficiency by adeptly navigating academic integrity within the realm of AI tool use and making informed ethical decisions regarding their use in academic environments.

Figure 7: AI Ethics and Plagiarism Improvements Year 10 (School D)



6 **Characteristics of effective learning environments**: Analysis of our data shows that the materials were more effective at enhancing learning across all parameters in schools with a pre-established foundation in online safety and a commitment to embedding digital literacy skills early on, as illustrated in figures 2 and 7. Collaborative learning environments and teachers engaging in meaningful discussions with their students rather than focusing on rapid content delivery for memorisation contributed significantly to positive outcomes. Where the intervention was viewed as fun and challenging rather than an additional burden, and where the stress levels of the teachers delivering the curriculum were regulated by full and unconditional support from their leadership and fellow teachers, we noted the most extensive learning across all parameters.

7 **Learners' dispositions**: Students and teachers with curious, creative, civic-minded, resourceful, and self-reflective dispositions responded more effectively to the materials. Individuals with these characteristics were better equipped to navigate and make the most of the educational content provided. Our analysis of data suggests that the materials themselves also contributed to developing more curious, creative, civic-minded, resourceful and self-reflexive dispositions, particularly amongst those who assumed they knew a lot about digital environments. As one Year 8 student remarked when doing an exercise on Fake News:

> "I enjoyed picking up all the parts to see how they can be fake."

Another Year 5 student expressed appreciation for the opportunity for creativity, stating:

> "I kind of liked it as well because we kind of let our imagination go wild…. Because in some of the lessons, like Math, English, those kinds of lessons, like your brain just stuck constantly on one thing... Here we had a bit more freedom."

These quotes underscore the positive impact of the intervention on fostering dispositions among learners.

8 **Digital divide**: The range of statements from teachers at different schools and of age cohorts acknowledged what the literature was already telling us: "there is a digital divide", in the schools regarding digital access and resources. Despite increased attempts at inclusion due to Covid-19 lockdowns and the provision of devices for online lessons, we were told that since then, the situation has regressed. Different teachers noted that:

> In lockdown, they realised that lots of students don't have access, so each child was given a device to ensure that there isn't a digital divide. But that was during Covid, but as far as I'm aware, no [they no longer get given devices to support their learning].

> Only now [since Covid] that we have a process in place for PPG [Pupil Premium Grant] students who will be the first students to get chromebooks back slowly.

This dovetailed with our observation that some schools had neither the space nor the equipment necessary to be cutting edge in their teaching of critical media literacy, digital technologies and citizenship.

9 **Implications for media literacy materials' evaluation**: The findings underscore the importance of evaluating media literacy materials in terms of their impact on recognising and resisting scams, fake news and misinformation. Consideration of school environments, curriculum prioritisation, and teacher characteristics is crucial for assessing the effectiveness of digital citizenship interventions.

6.1 Achieving our desired outcome

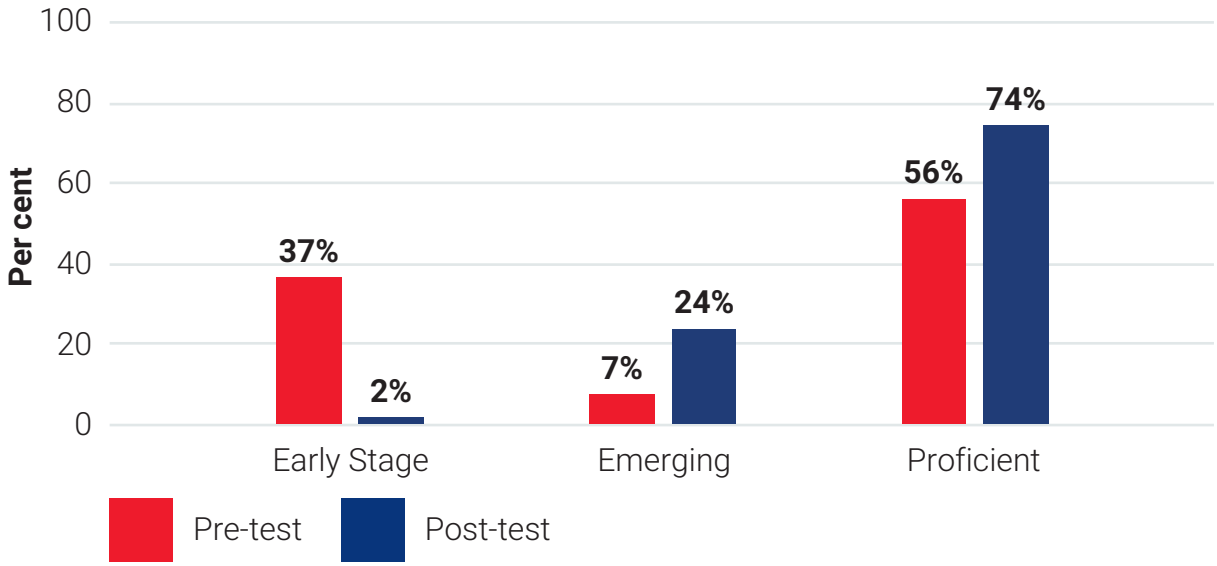
Overall, our analysis of the data indicates several positive impacts of the CS Digital Citizenship intervention and several positive insights from our evaluation materials. Additionally, we have findings that allow the strengthening and further customisation of the digital citizenship curriculum materials. The overall positive impact of the Digital Citizenship intervention, our ability to measure changes between pre- and post-test scores and as observed in the baseline to post-intervention evaluation results, reflects the effectiveness of the program itself and of our evaluation strategy and evaluation methodology. Below are some illustrative examples:

6.2.1 Cyberbullying, online hate and digital drama[11]

Year 5 students responses underscored a notable development in empathy and support towards others online. Figure 8 below illustrates the percentage of students (y axis) that improved in the scenario questions relating to the theme of Cyberbullying, Online Hate and Digital Drama. After the lessons, only 1 per cent of Year 5 students remained in the 'Early Stage' category of Cyberbullying, Digital Drama, and Hate Speech. This marked a substantial improvement from the pre-test, where 37 per cent of the students were in this category. Additionally, the percentage of students in the 'Emerging' category increased from 6 per cent in the pre-test to 24 per cent in the post-test, while the 'Proficient' category showed significant growth from 57 per cent to 74 per cent. Overall, the intervention resulted in positive shifts in student behaviour and understanding of the importance of treating others with respect, kindness, and empathy, choosing an approach that considered the well-being of others.

[11] In assessing the students' behaviour and understanding related to cyberbullying, online hate, and digital drama, we utilised our rubric-based approach with specific scoring criteria. As noted above, the rubric consisted of three stages: Early Stage, Emerging and Proficient, each with key characteristics defining the students' level of understanding and application of digital ethics and respectful online behaviour. For detailed reference of each stage please see Annex 1.

Figure 8: Cyberbullying, Online Hate and Digital Drama Improvements Year 5

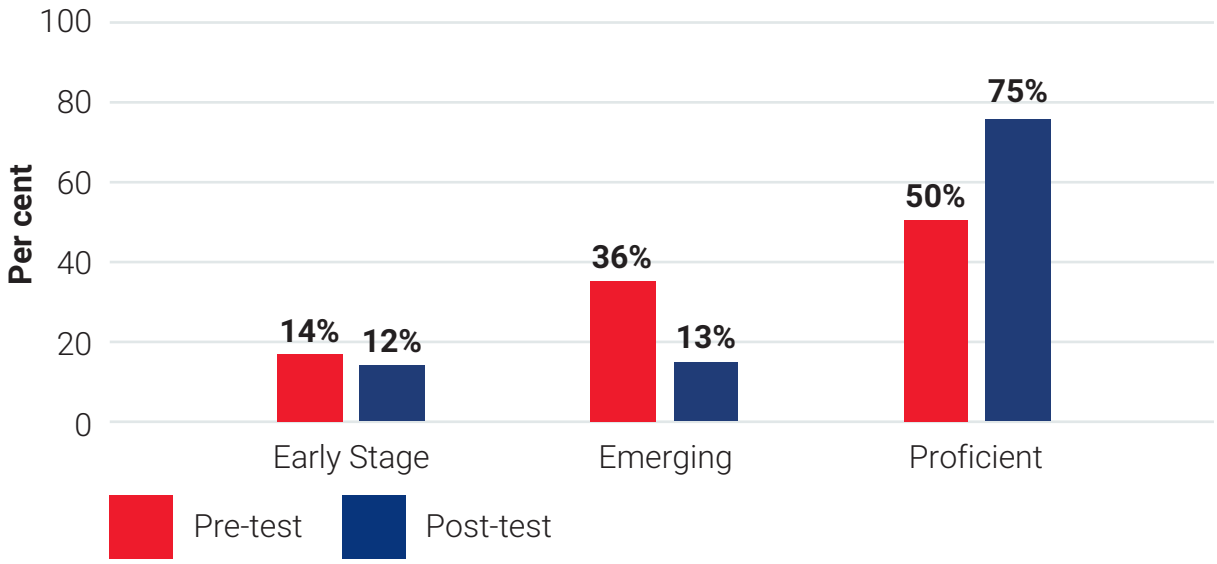


Conversations with the younger learners also reflected the impact of the assessment in nurturing the dispositions of being 'Caring and Mentoring' towards others. After the intervention, when Year 5 students were asked about what it meant to be a digital citizen, many of the responses included statements such as "Someone that stands up for people" and who is "helpful to others online" (comments made by two Year 5 students). Additionally, the Year 2 students' preference for the character 'Heart,' in the Stakeholder materials, who highlights the importance of being kind and empathic both online and offline, further underscores the younger learners' appreciation for caring for others in the digital realm after the lessons. When talking about why Heart was their favourite character, a Year 2 student mentioned that "heart makes me think about others".

6.2.2 AI and plagiarism

As illustrated in figure 9 below, in the post-test, 75 per cent of Key Stage 4 students demonstrated a heightened readiness to discuss concerns with teachers, seeking ethical guidance on using AI apps for homework compared to 50 per cent in the pre-test). This highlights a 25 per cent improvement in the attitude of secondary students in navigating urgent plagiarism challenges posed by AI in academic assignments.

Figure 9: AI Ethics and Plagiarism Improvements Year 10



Additionally, Year 10 students highlighted the significance of the AI lesson:

> So I thought a lot about the recent AI lesson, because it's very debatable and there's different perspectives that you can explore. And you have to argue from different sides, like when we did the debate. And it talks about what's happening right now, and we don't know about it.

> I also thought that the AI lesson was very interactive and very important, because I feel like AI is going to be a big part of the world someday, like in the future. And our lives will revolve mostly around AI and computers and computer science.

7 Conclusion and Recommendations

LSE's evaluation of the intervention using the Common Sense Digital Citizenship curriculum reveals a markedly positive change in primary and secondary students' media and news literacy skills and confidence across all key stages and age groups. Analysis of our qualitative data establishes the broadly positive reception, with both teachers and students valuing the program's engaging content. Meanwhile the baseline evaluations use quantifiable indicators to demonstrate consistent improvement across all schools. Factors influencing resilience to misinformation included the prioritisation of online safety in the curriculum, effective scaffolding by knowledgeable staff and peers and good technological resources. Teachers played a vital role, fostering enriched discussions and aiding students with lower initial knowledge levels. Effective learning environments, characterised by early digital literacy embedding and collaborative discussions, contributed significantly to positive outcomes. Student and teacher characteristics, such as curiosity, playfulness, and self-reflection, influenced effective responses to the materials. Overall, the findings highlight the need to evaluate media literacy materials in terms of their impact and emphasise the crucial role of school environments, curriculum prioritisation, and teacher characteristics in assessing digital citizenship interventions.

The evaluation of the CS Digital Citizenship materials has provided numerous insights into how to enhance the delivery of media literacy interventions and inform the development of intervention and evaluation best practices in the future.

7.1 Recommendations for the delivery of media literacy interventions

1) In secondary schools, a more in-depth exploration of digital citizenship topics spanning over two lessons (90-120 min) is recommended rather than brief one-off lessons. This approach allows for thorough discussion and a deeper understanding of complex issues, fostering critical thinking and ethical skill development. Another possibility would be to spread the intervention throughout the term, adopting a workshop-style format and having it taught on one afternoon per week.

2) Mixed ability groups are more able to promote inclusivity, critical engagement and enthusiastic learning across the spectrum. The emphasis should be on fostering the participation of all students, ensuring that diverse experiences and perspectives are considered and valued within the learning environment, rather than the centring of those who happen to play more digital games or those who have access to more media at home.

3) Teachers should be confident and feel expert with the materials and subject matter before commencing the teaching. This not only ensures a high level of subject knowledge but also adds credibility and distinctiveness to the classroom experience. The success/impact of the intervention relies highly on the interaction between teachers and students and between students. Expertise in the knowledge also allows teachers to answer follow-up questions and address related concerns, contributing to a space for meaningful discussions and scaffolding.

4) Materials must be updated regularly to ensure their relevance to students' lives, enhancing engagement and applicability. Connecting digital citizenship concepts to real-life situations makes the content more relevant and impactful. If the materials use a limited number of cases, teachers should be encouraged to bring ideas and issues from their students' own life worlds to discuss.

5) The success of the intervention is influenced by each school's prior investment of time and resources in teaching digital citizenship related topics. Preceding interest and commitment from both students and teachers contributes to a more engaging learning experience and increases the ability to make healthy digital choices, resist misinformation, stay safe and take care of others in online environments.

6) Teachers should have the flexibility to adapt lessons to the needs of their students. This adaptability ensures that the content remains relevant and effective in different classroom settings. Inclusive interventions should have special provisions for students with special needs (SN) and those on the autism spectrum. Tailoring the content to accommodate diverse learning styles and neurodiverse classrooms ensures that all students benefit from the intervention. Additionally, the introduction to the materials and the lessons needs to take into account real-world UK classroom environments. This means that they need to include more flexibility for teachers to pace, deliver, or change the ordering and flow of lessons. This will enhance their applicability and effectiveness in varied educational contexts.

7) Learning materials should cultivate foundational (digital) citizenship traits and recognise the significance of instilling key dispositions amongst students such as, Playful and Creative, Participating and Civic Minded, Critical and Self-Reflective, Caring and Mentoring and Resourceful. Lessons should tap into these dispositions and give space to students to develop them.

8) The materials need to include a section that works holistically with schools, children and parents/significant adults around adult digital habits, knowledge and health.

7.2 Recommendations for evaluation best practices

1) Evaluations of interventions cannot be solely based on test scores and need to combine qualitative and quantitative methods. It is essential to use a mix of quantitative and qualitative methods to capture a holistic view of the intervention's impact. This combination ensures a more nuanced understanding of the behaviours, dispositions, and attitudes towards digital citizenship, cultivated during the intervention.

2) Baseline evaluations should be developed to be age-appropriate and categorised into themes. Organising the quantitative data into thematic areas will facilitate a targeted analysis and comparison. This approach also enables a focused evaluation of specific aspects, enhancing the depth of insights gained.

3) Rubrics should be developed to assess the themes systematically. This will provide a structured framework for evaluating the effectiveness and impact of the lessons while also ensuring that each theme is adequately addressed. The rubric can also focus on the dispositions such as Playful and Creative, Participating and Civic Minded, Critical and Self-Reflective, Caring and Mentoring and Resourceful, this allows for a nuanced understanding of how well the lessons instil these essential qualities in the students.

4) It is crucial that the pre- and post-tests, along with the scoring rubric, should be meticulously developed to assess factual knowledge of systems and processes, universal or contextual indicators of safety and digital civic etiquette, and complex reasoning rather than moral choices influenced by parenting or pedagogic expectations and cultures. Any evaluations that are scenario based need to be carefully piloted and checked to make sure that they are actually testing digital citizenship rather than variables such as obedience to adults or agreement with authority.

5) Regularly review and update evaluation methods to adapt to evolving trends, tendencies and challenges in the digital citizenship of different age groups. This is especially important for the baseline evaluation and to ensure that its content remains effective and relevant over time.

6) Engaging various stakeholders (eg, media literacy researchers and providers such as LSE and Common Sense), including teachers and students enriches the evaluation outcomes, providing more comprehensive understanding and feedback.

7) Alongside the rubrics and methods outlined above, longitudinal analyses where researchers return to schools and cohorts to track changes over time are both desirable and necessary. This approach would allow for a deeper understanding of the sustained impact of the intervention on students' digital citizenship skills, dispositions, and behaviours.

8) Evaluations that include feedback from the local communities of parents, carers and other significant adults forming the children's zones of proximal development via workshops, observations and interviews stand the greatest chance of capturing the factors that enhance the impact and longevity of school-based digital citizenship interventions in the realm of misinformation and disinformation.

8 References

Badri, M., Alnuaimi, A., Al Rashedi, A., Yang, G., & Temsah, K. (2017). School children's use of digital devices, social media and parental knowledge and involvement - the case of Abu Dhabi. **Education and Information Technologies**, 22(5), 2645–2664.

Ballard, J., & Butler, P. (2011). Personalised learning: Developing a Vygotskian framework for E-learning. **International Journal of Technology, Knowledge and Society**, 7(2), 21-36.

Banaji, S., & Bhat, R. (2022). **Social Media and Hate**. Routledge.

Banaji, S. (2020). Introduction. In Banaji, S. and Mejias, S. (Eds.), **Youth Active Citizenship in Europe: Ethnographies of Participation.** Palgrave Macmillan.

Banaji, S. (2017). **Children and Media in India: Narratives of Class, Agency and Social Change**. London, New York & New Delhi: Routledge.

Banaji, S. (2015). Behind the high-tech fetish: children, work and media use across classes in India. **International Communication Gazette**, 77(6), 519-532.

Banaji, S., & Buckingham, D. (2013). **The Civic Web: Young People, the Internet and Civic Participation.** MIT Press.

Banaji, S. and Mejias, S. (2020). **Youth Active Citizenship in Europe: Ethnographies of Participation.** Palgrave Macmillan.

Common Sense Media. (n.d.). Digital Literacy and Citizenship. Available at: **https://www.commonsensemedia.org/what-we-stand-for/digital-literacy-and-citizenship** (Accessed: 02 February 2024).

Drigas, A., Papanastasiou, G., & Skianis, C. (2023). The school of the future: The role of digital technologies, metacognition and emotional intelligence. **International Journal of Emerging Technologies in Learning (iJET)**, 18(09), 65–85.

Hartshorne, J. K., Huang, Y. T., Paredes, P. M. L., Oppenheimer, K., Robbins, P. T., & Velasco, M. D. (2021). Screen time as an index of family distress. **Current Research in Behavioural Sciences**, 2, 100023.

Kellner, D., & Share, J. (2019). Towards critical digital and media literacies. In **The Critical Media Literacy Guide**, 1–20.

Kuhn, D. (2022). Metacognition matters in many ways. **Educational Psychologist**, 57(2), 73-86.

Livingstone, S. and Blum-Ross, A. (2020). **Parenting for a Digital Future: How Parents' Hopes and Fears about Technology Shape Children's Lives**. New York: Oxford University Press.

Livingstone, S. (2009). **Children and the Internet: Great Expectations, Challenging Realities.** Oxford, UK: Polity Press.

Livingstone, S. and Sefton-Green, J. (2016). **The Class: Living and Learning in the Digital Age.** New York: NYU Press.

Ofcom. (2021). **Children and Parents: Media Use and Attitudes Report**. Retrieved from [**https://www.ofcom.org.uk/siteassets/resources/documents/research-and-data/media-literacy-research/children/childrens-media-literacy-2021/children-and-parents-media-use-and-attitudes-report-2020-21.pdf**]

Pérez-Escolar, M., Lilleker, D., & Tapia-Frade, A. (2023). A systematic literature review of the phenomenon of disinformation and misinformation. **Media and Communication**, 11(2), 76-81.

Shu, K., Wang, S., Lee, D., & Liu, H. (2020). Mining Disinformation and Fake News: Concepts, Methods, and Recent Advancements. In **Disinformation, Misinformation, and Fake News in Social Media: Emerging Research Challenges and Opportunities**, K. Shu, S. Wang, D. Lee, & H. Liu (Eds.), 1–19. Springer Cham.

Smith, J., & Johnson, A. (2021). Critical media literacy as transformative pedagogy. In **The Handbook of Research on Media Literacy in the Digital Age**, 45-62. New York: Academic Press.

Vygotsky, L. S. (1934). **Thought and Language.** (E. Hanfmann & G. Vakar, Trans.). MIT Press.

Vygotsky, L. S. (1978). **Mind in Society: The Development of Higher Psychological Processes.** (Edited by M. Cole, V. John-Steiner, S. Scribner, & E. Souberman). Harvard University Press.

Annexes

9.1 Annex 1: Digital citizenship rubric © LSE Media and Communications

Development Stage, Evaluation Scoring and Key Characteristics of Stage	Description	Foundations of Digital Citizenship	Description of Development Stage
Early Stage (0): Initial exploration, incipient knowledge	Demonstrates limited understanding and application, requiring significant support and guidance.	Digital Privacy and Online Identity Management:	Limited understanding and application of privacy and online identity management practices. Requires significant support and guidance in protecting personal information and managing online identity. Lacks a clear understanding of online safety concerns and the risks associated with sharing personal information online and talking to strangers and does not effectively seek assistance or utilise available resources.
		Media Balance and Emotional Wellbeing:	Limited awareness and management of media consumption and its impact on emotional wellbeing. Requires significant support and guidance in maintaining a healthy balance and managing emotions related to online activities.

Development Stage, Evaluation Scoring and Key Characteristics of Stage	Description	Foundations of Digital Citizenship	Description of Development Stage
Early Stage (0): Initial exploration, incipient knowledge	Demonstrates limited understanding and application, requiring significant support and guidance.	Digital Ethics and Respectful Online Behaviour:	Limited understanding and practice of digital ethics and respectful online behaviour. Requires significant support and guidance in demonstrating ethical conduct and respectful interactions online. Lacks an understanding of the importance of participating and being civic-minded online.
		Critical Literacy:	Limited ability to verify information, distinguish credible sources, and understand the potential consequences of spreading misinformation. Requires significant support and guidance in developing critical literacy skills.
Emerging (1): Engaging, considering	Shows progress and readiness for development with active engagement.	Digital Privacy and Online Identity Management:	Displays an active engagement in developing and implementing privacy and online identity management practices, showing strides in protecting personal information and navigating online identity with increasing awareness. Exhibits an emerging sense of resourcefulness in addressing online safety concerns, yet there is potential for further refinement.
		Media Balance and Emotional Wellbeing:	Developing awareness and management of media consumption and its impact on emotional wellbeing. Shows progress in maintaining a healthy balance and managing emotions related to online activities but may need further development in establishing consistent practices.

Development Stage, Evaluation Scoring and Key Characteristics of Stage	Description	Foundations of Digital Citizenship	Description of Development Stage
Emerging (1): Engaging, considering	Shows progress and readiness for development with active engagement.	Digital Ethics and Respectful Online Behaviour:	Developing understanding and commitment to the practice of digital ethics and respectful online behaviour. Shows progress in demonstrating ethical conduct and respectful interactions online but may require further development in consistently applying these principles. Shows a growing involvement in their level of participation and civic mindedness but may need further development.
		Critical Literacy:	Developing understanding and commitment to the practice of digital ethics and respectful online behaviour. Shows progress in demonstrating ethical conduct and respectful interactions online but may require further development in consistently applying these principles. Shows a growing involvement in their level of participation and civic mindedness but may need further development.

Development Stage, Evaluation Scoring and Key Characteristics of Stage	Description	Foundations of Digital Citizenship	Description of Development Stage
Proficient (2): Recognition and contemplation, Self-efficacy and action	Demonstrates proficient understanding and consistent action.	Digital Privacy and Online Identity Management:	Proficient awareness and management of media consumption and its impact on emotional wellbeing. Maintains a healthy balance and manages emotions related to online activities effectively. Utilises available resources and support systems effectively. Demonstrates a clear understanding of potential online safety risks and the importance of protecting private information and recognises that providing it to unknown sources/users can be risky.
		Media Balance and Emotional Wellbeing:	Proficient understanding and practice of digital ethics and respectful online behaviour. Consistently demonstrates ethical conduct and respectful interactions online. Uses available resources and support systems effectively.
		Digital Ethics and Respectful Online Behaviour:	Proficient understanding and practice of digital ethics and respectful online behaviour. Consistently demonstrates ethical conduct and respectful interactions online. Understands the importance of responsible online behaviour and contributing to a positive online community.
		Critical Literacy:	Proficient ability to verify information, distinguish credible sources, and understand the potential consequences of spreading misinformation. Applies critical literacy skills effectively.

9.2 Annex 2: Example of a pre-test

YEAR 8 PRE-TEST

1) Which devices do you use the most? (You can pick more than one)

   a) Phone

   b) Laptop

   c) Tablet/Ipad

   d) Games console

   e) Other _____

2) Which of these statements about device usage describes you best?

   a) I don't use a phone and/or tablet at all.

   b) I don't use a phone and/or tablet at all. My parents/family won't allow it.

   c) I don't have a phone and/or tablet, I usually use a family member's device.

   d) I only use my phone for important texts/calls to parents/family and I don't have a tablet.

   e) I rarely look at my phone and/or tablet during the day, but I use it at night for an hour or two.

   f) I use my phone and/or tablet a lot on weekends and after school.

   g) I have my phone or my tablet on for most of the day on weekends and holidays, scrolling on social media apps.

h) I have my phone or my tablet on for most of the day on weekends/holidays and I actively chat with friends, watch interesting/fun videos, and use different apps.

i) I use my phone and/or tablet intentionally only for school-related tasks.

j) Other _____

3) If your usage of devices/screen time is mostly to play games, which of these statements describes you best (You can pick more than one):

a) I don't play games online or downloaded.

b) I spend more than an hour a day playing games downloaded on my phone/tablet.

c) I spend more than an hour a day playing with friends or other players from around the world in online multiplayer games.

d) I discuss games and gaming with other players online at least once a week.

e) I enjoy recording myself playing games and watching other players' stream their gameplay online.

f) I'm only allowed to play games for a few hours per week because otherwise I wouldn't stop.

g) I give myself specific time blocks for gaming to ensure I can also do other school and family activities.

h) I play games without restrictions, without any limitations or restrictions.

4) What are your top three most played games at the moment? (include up to three).

a) Fill out:

_____

_____

_____

b) I don't play games online or downloaded.

5) Which social media platforms do you use regularly? (You can select more than one).

a) Instagram

b) Snapchat

c) TikTok

d) YouTube

e) WhatsApp

f) X (formerly Twitter)

g) Facebook

h) Pinterest

i) Discord

j) Twitch

k) Reddit

l) None

m) Other _____

6) Which of the following streaming platforms do you use regularly (at least once a week)? You can select more than one.

a) Netflix

b) Amazon Prime Video

c) Disney +

d) Twitch

e) Apple TV+

f) BBC iPlayer

g) ITV Hub

h) Spotify

i) All 4

j) Sky Go

k) None at all

l) Other _____

7) If you use any of the streaming platforms mentioned above, how much time do you spend every week on them?

a) Less than 3 hours per week.

b) 3-5 hours per week.

c) 6-10 hours per week.

d) Two hours a day on average, so around 14h a week.

e) Around 4 hours a day, so approximately 28h a week.

8) Do you know who owns the Games, Apps and Platforms you use?

   a) I think I do, but I'm not sure.

   b) I don't but I'd like to know more.

   c) I don't and I don't want to.

   d) I do, because I have read it in gaming websites and/or heard it on Twitch (or other related gaming platforms).

   e) I do know because I have researched who owns them, it is important to know.

9) Marianne enjoys using social media (Instagram) and often posts photos or updates about her life. Lately, she's noticed that she spends hours scrolling through her feed, which leaves her with less time for other fun activities and is also giving her less time for homework. But she feels anxious when she doesn't check Instagram frequently to see what others are up to. She's afraid of missing out.

   Her friends send her lots of memes, and it's overwhelming.

   What can Marianne do to get a healthier balance in her digital life?
   (Choose ONE option)

   a) Marianne should continue using the app as usual, as it's essential for staying connected with friends and sharing updates, even if it means sacrificing time for other activities and/or dealing with the anxiety caused by the overwhelming content.

   b) Marianne should set specific daily limits on the amount of time she spends on the app to ensure she has time for other activities. Although she can sometimes connect with her friends online when they comment on reels it's important that she also nurtures her friendships offline.

   c) Marianne should spend more time with her friends in real life as this will help her to feel closer to her friends than chatting online.

10) For the past weeks Kwame has been exchanging emails with his auntie as they're preparing a surprise trip for the engagement of Elisa, his cousin. To do so, he's been using his Gmail account. They're planning on booking Elisa an Airbnb in Cornwall. After their conversations via email Kwame starts to get adverts from Airbnb despite not having done any research, his auntie hasn't sent any specific Airbnb links to him yet either.

    Why do you think Kwame is seeing these adverts? (Choose ONE option)

    a) It could be a coincidence that Kwame started seeing Airbnb ads after his email conversations about the trip. Sometimes ads are not directly related to our online activities.

    b) I don't know, since conversations via email are private, protected, and completely secure.

    c) Because Kwame has been exchanging emails about booking an Airbnb for Elisa's engagement trip. If Kwame uses Gmail (which is part of Google), it means that Google can track his recent email exchange which is then personalising the ads shown to him. This practice is common in online advertising.

11) At the weekend, Carys and her best friend Becky went to Brighton with their families. Carys uploaded lots to her Instagram profile about the trip. Carys ran out of battery and didn't post anything. When she got home and charged her phone she looked through Becky's stories and saw a photo of herself that she was very upset by.

    What do you think Carys should do? (Choose ONE option)

    a) It's fine, stories on Instagram are only temporary; the annoying post will be gone in 24h.

    b) Ideally, Becky should have asked Carys if she was okay with uploading the photo, but now that it's up it would be embarrassing to ask her to take it down so Carys should probably just ignore it and tell Becky to ask her for permission before uploading next time.

c) Carys should text or phone Becky to ask her to take it down, explaining that it upsets her, and tell Becky to get her permission before she uploads a photo of her in future.

12) Have you ever seen online content that you think might be dangerous or harmful?

a) Yes

b) No

c) I am not sure what counts as dangerous or harmful content.

d) Prefer not to say.

13) If yes, what was it: (Choose more than one option if appropriate)

a) Bullying or mean words targeted at you or someone you know.

b) Abusive words or horrible pictures about a religious group.

c) Extremely violent content for no reason or celebrating violence.

d) Abusive content or horrible pictures about women and/or girls.

e) Abusive content or horrible pictures about gay, Lesbian, bisexual or trans people.

f) Abuse against people with disabilities, neurodivergence or learning difficulties.

g) Abuse against people from a particular race, continent or country.

h) Abuse and nasty images about body size or shape.

i) Abuse based on money, social status/socio-economic background.

j) Something else [open text]

_____

14) Aisha has just returned home from school. She receives a Snapchat notification on her phone that someone from Year 8 took a picture of her friend Jamal's lunch box, making fun of the food he was eating, which is traditional to where he was born. Aisha feels uncomfortable and hopes that Jamal doesn't see the picture. Five minutes later Aisha receives a WhatsApp notification from Jamal who is very upset. He's worried that if he says anything about it, people will think he's 'soft' and will try to hurt him more.

What would you do if you were Aisha? (Choose ONE option)

a) I would message the person who shared the photo and confront them, without telling anyone else.

b) I would tell Jamal that it's not a big deal, these things are temporary on Snapchat.

c) I would go and show my support to Jamal and make a plan with Jamal to raise awareness about racist bullying online by discussing this with the teacher, all our other friends and the class. The school has an anti-bullying policy, which also covers online bullying.

15) Ahmed will soon be doing his GCSEs and is browsing the internet trying to find ways to make the best out of his study time. He comes across an interesting video on YouTube claiming that Coca-Cola enhances brain performance. Ahmed is confused since the video seems to be sponsored by Coca Cola. He thinks it might contain misinformation. [Misinformation is false or inaccurate information spread intentionally or unintentionally. Fake news is fabricated, or misleading news stories or made-up content presented as if it is real and accurate news.]

If you were Ahmed, how would you deal with potential misinformation and doubtful claims when you encounter them online? (Choose ONE option):

a) I know that there is a lot of fake news and misinformation around, but it doesn't affect me.

b) I know that there is a lot of fake news and misinformation around and it worries me but I don't know what to do.

c) I know that there is a lot of fake news and misinformation around and I always check other sources carefully before I believe what's said on You Tube/Instagram/ TikTok/WhatsApp/Snapchat.

16) Zoe is doing a geography research project about Switzerland. As she explores various online resources and articles, she finds information about one of Switzerland's extinct agricultural practices. According to the website, "spaghetti trees" were cultivated in some regions of Switzerland. Zoe finds the idea of spaghetti trees exciting as she's never heard of it before. There's even a video about these trees on YouTube. Zoe is convinced that the class will be amazed if she presents this fact but is slightly worried that it might not be true.

What would you do if you were Zoe? (Choose ONE option):

a) I would go ahead and share the images with my parents and a few friends and ask their opinion before including them in my presentation.

b) I would do my presentation to the class with all the great images and videos I'd found online as proof, and everyone will be amazed.

c) I would check out this "amazing" fact – if something seems too strange to be true, it might be a hoax [fake or made-up information to trick people]. I'd go to an encyclopaedia or educational website to check if spaghetti trees are mentioned as a part of Switzerland's agricultural practices.

17) Olu's English teacher has asked everyone to get into groups of six and spend some time on the school computers looking for a piece of news to discuss with the class. In one of the groups, Olu finds a headline saying that Pope Francis supports former president Donald Trump.

The headline looks real, but Olu is unsure about the truth of the news and whether he should share it with the class. Olu discusses the headline with the members of his group. Whose advice should the group take? (Choose ONE option):

a) Nathan says that over 6.7 thousand people have shared it, it must be for real.

b) Simi suggests that Olu should immediately share the news headline with the rest of the class but ask them their opinions on whether it is real or fake.

c) Louise recommends that Olu should look to see if other big and freely available news outlets like The Guardian, CNN, The BBC or Al-Jazeera are reporting the same information to check if it has been confirmed.

9.3 Annex 3 – Example of a primary lesson and slides

Lesson Plan:

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Pause & Think Online (UK)

AGE 6–7

TIME 25 mins.

How can we be safe, responsible and respectful online?

Watch: Pause & Think Online

5 mins.

Before the Lesson: Introduce "The Digital Citizens" characters by having learners complete the **Colouring Book**.

1) **Ask**: Do you ever go on the internet? What kinds of things do you do? Or could you do?

Invite learners to respond.

Answers will vary, but emphasise that there are many different things we can do online, including learning new information, playing games, communicating with friends and family, and looking at pictures and videos.

2) **Say**: Wow! There are so many amazing things we can do online.

Project **Slide 3** and define **online** as using a **computer, phone or tablet to visit a website or app**.

3) **Say**: When we go online, it's important to follow certain rules to make sure we have a good time. Today, we're going to listen to a song called "Pause & Think Online" to learn how we can be safe and responsible on the internet.

Ask: What does it mean to pause?

Invite learners to share responses.

Project **Slide 4** and define **pause** as t**o stop what you're doing or saying**.

4) **Play** the **Pause & Think Online** music video on **Slide 5**.

As the video plays, model the dance moves in the chorus and encourage learners to join!

Chorus:

From your head down to your toes [Point to head and then to toes]
Pause and think about it [Stick both hands out in front and then point hands to head]
From your feet up to your nose [Point to feet and then to nose]
Pause and think online! [Stick both hands out in front and then point hands to head]

Explore: Head to Toe

15 mins.

1) **Say**: The Digital Citizens showed us how to use our head, legs, feet, arms, gut and heart to be safe and responsible online. Let's take a look at each of the characters and what they do!

Project **Slide 6** and read the name of each character along with the following descriptions:

- **Arms**: Use your arms when you're online to balance your time.
- **Guts**: Listen to your gut to stay safe online.
- **Feet**: Use your feet carefully when leaving tracks online.

Project **Slide 7** and read the name of each character along with the following descriptions:

- **Legs**: Use your legs to stand up to bullies online.
- **Heart**: Use your heart to be kind and respectful online.
- **Head**: Use your head to ask questions about what you see online.

Note: Each of the characters represents one of the six digital citizenship topics as listed below:

- **Head**: News and Media Literacy
- **Arms**: Media Balance and Well-Being
- **Guts**: Privacy and Security
- **Legs**: Digital Drama, Cyberbullying and Hate Speech

- **Feet**: Digital Footprint and Identity

- **Heart**: Relationships and Communication

2) **Ask**: Which character do you relate to the most when you go online? Share with your partner. (**Slide 8**) Have learners share with their partner and then invite them to share with the class. Or take a poll of which character each learner relates to the most.

3) **Say**: Now we're going to take a closer look at a few of the scenes from the song.

For **Slides 9-13**, project each slide, read aloud the question and have learners share with their partners. Then invite them to share with the class. This can also be done as a class discussion instead.

Refer to the following suggested answers to guide the discussion:

- **Do you believe everything you see on the internet? (Slide 9)**
  It's important not to believe everything you see on the internet, since people can make things up that aren't true. Always think carefully about the things you see online!

- **Why should we take a break from technology sometimes? (Slide 10)**
  It's a good idea to take a break from technology every once in a while, so you can spend time being active and hanging out with friends and family.

- **Why shouldn't you open a message from someone you don't know? (Slide 11)**
  It's important not to open up messages from people you don't know, since the information may not be appropriate or safe.

- **Why is it important to be kind online? (Slide 12)**
  Being mean hurts people's feelings. We are kind and courteous to others, both in person and online.

- **Why shouldn't you share your username and password with other people? (Slide 13)**
  It is considered private information and something you want to keep safe. Others could log in to your account and pretend to be you. You should only share it with trusted adults, like your teacher or parents.

- **How do you communicate with friends and family online? (Slide 14)**
  Answers will vary, but learners may mention video calls with grandparents or cousins.

Reflect: Pause & Think Moment

5 mins.

1) **Say**: Today we watched the Digital Citizens show us how they sing and dance to remember to be safe and responsible online.

Remember that when you're online, you should pause and think to make sure you're doing the right thing.

Now, I'd like for you to pick one of the body parts and think about how you will use it next time you go online.

2) **Distribute** the **Pause & Think Moment handout**.

Read the directions aloud and allow learners to complete the activities independently. (**Slide 15**)

3) **Invite** learners to share their reflections with the class. Collect handouts to assess learning.

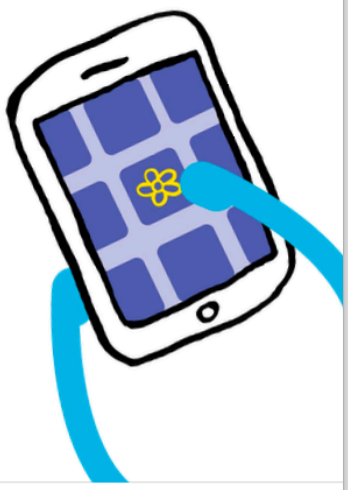
4) **Send** learners home with the **Family Activity**.

Lesson Slides:

KEY VOCABULARY

Online

Using a computer, phone or tablet to visit a website or app



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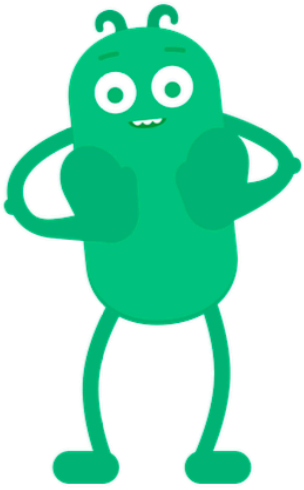
KEY VOCABULARY

Pause

To stop what you're doing or saying



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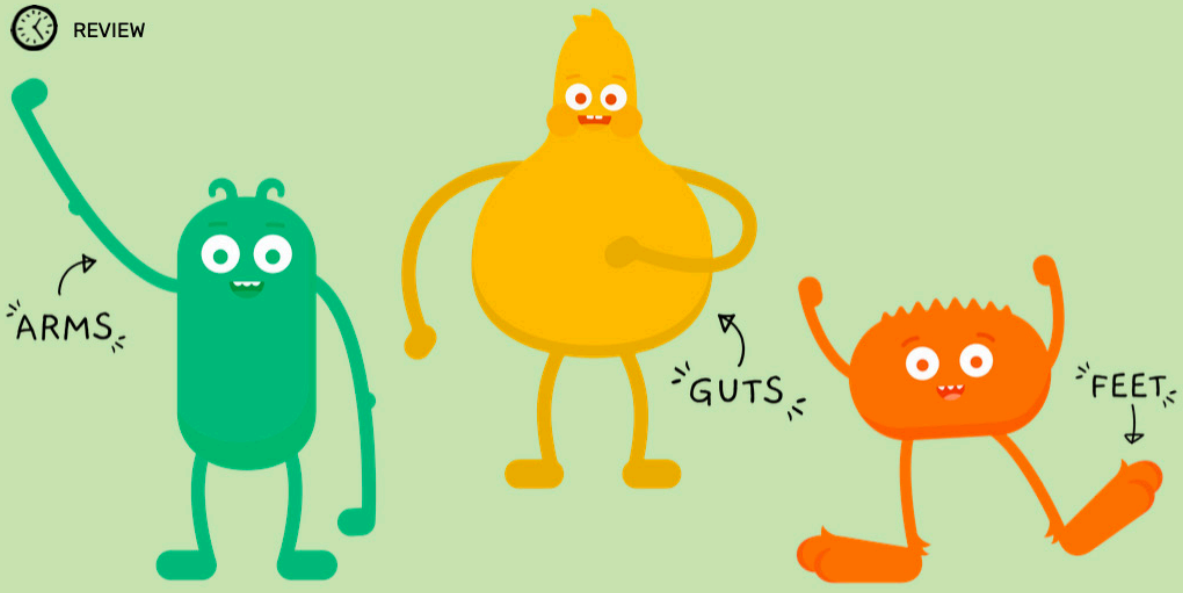
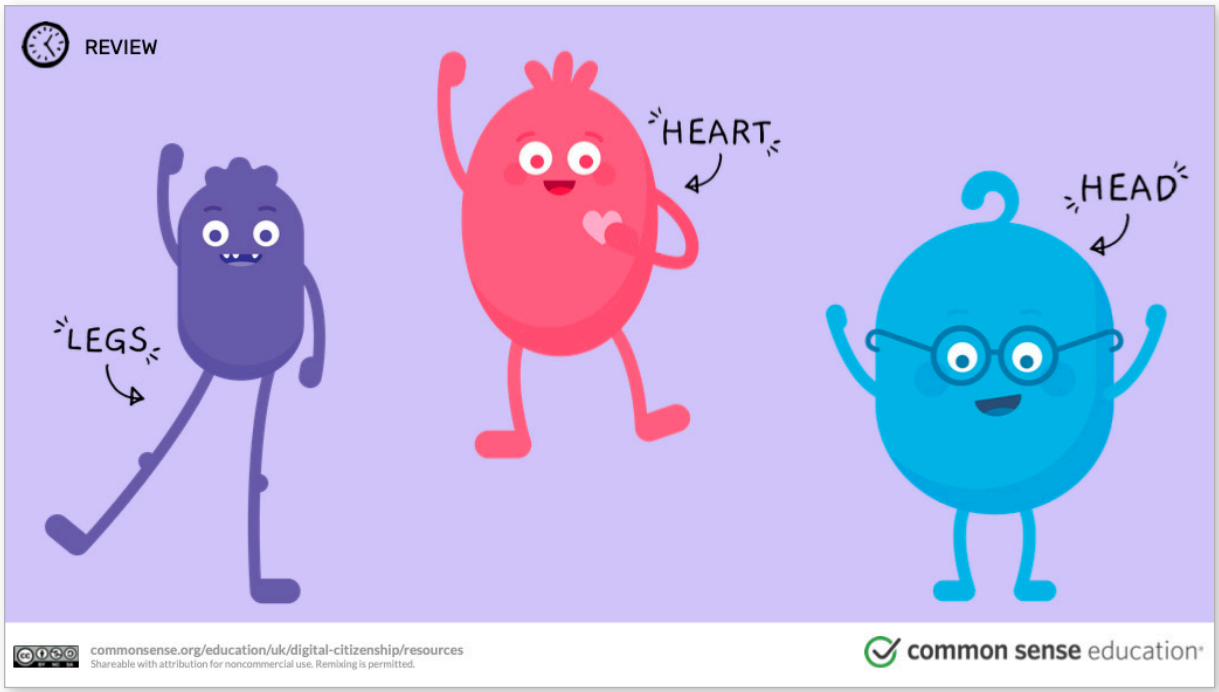
WATCH

To watch this video on the Common Sense Education site, click here.

REVIEW




REVIEW
HEART
HEAD
LEGS
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PAIR-SHARE
Which character do you relate to the most when you go online?
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PAIR-SHARE

Do you believe everything you see on the internet?

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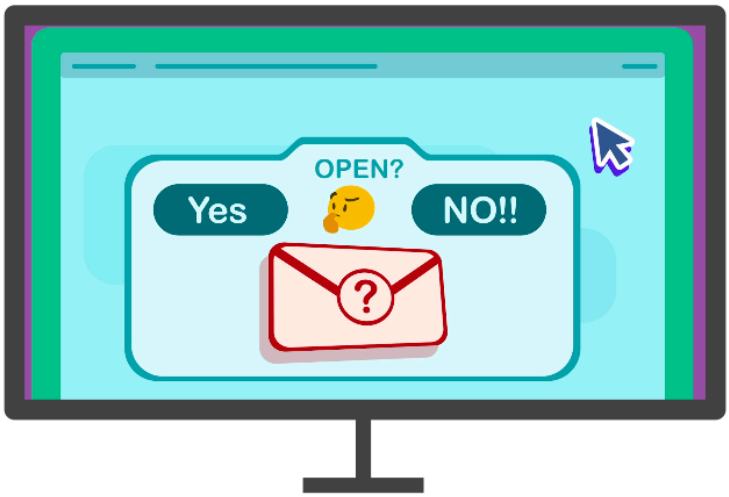
PAIR-SHARE

Why shouldn't you open a message from someone you don't know?



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PAIR-SHARE

Why should we take a break from technology sometimes?

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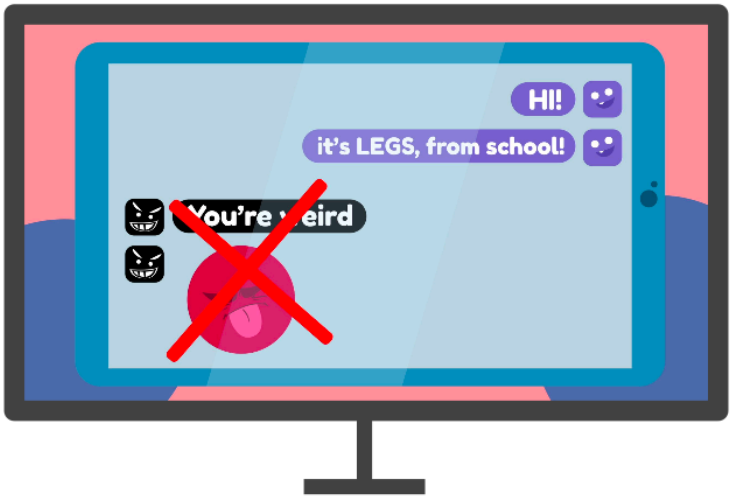
PAIR-SHARE

Why is it important to be kind online?



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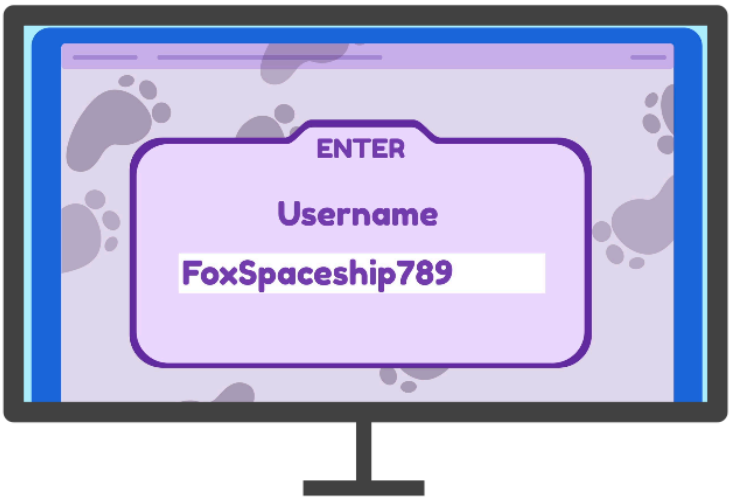
PAIR-SHARE

Why shouldn't you share your username and password with other people?



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REFLECT HANDOUT

Pause & Think Moment

Draw a picture to show how you will be like one of the Digital Citizens next time you're online.

and

Write about how you will be like one of the Digital Citizens next time you're online.

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9.4 Annex 4 – Example of a secondary lesson plan and slides

Lesson Plan:

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Artificial Intelligence: Is It Plagiarism?

GRADE 9–12

TIME 50 mins.

What is the impact of artificial intelligence on how we learn and create?

Explore: What is AI?

15 mins.

Note: This lesson contains an excerpt from a podcast. Before the lesson, make sure you can access the **video version** of the podcast on YouTube.

1) **Ask**: What are some things that are easy for computers or software to do, and that are more challenging for humans to do? In contrast, what are things that are easier for humans to do that would be hard (or even impossible) for a computer or software to do?

Invite students to share out.

Sample answers:

- Computers/software: solving complex math problems, sorting items in alphabetical or numerical order, searching for an item from a large list

- Humans: expressing emotions, empathizing with others, understanding nuance and context, critical thinking

2) **Say**: Have you heard about artificial intelligence? What are examples of AI you have heard about or used yourself?

Give students a few minutes to share their answers and experiences. Then, project **Slide 4** and define **artificial intelligence** as a computer program or app that can perform tasks that typically require human intelligence.

3) **Say**: Today we're going to talk about a specific type of AI, **called generative AI**. Generative AI is a type of AI that can create content, including text, images, and audio (**Slide 5**).

4) **Show** the **What to Know About OpenAI's Chatbot** episode from the Wall Street Journal's Tech News Briefing podcast (**Slide 6**) and have students complete the graphic organiser on the **Creative AI student handout** as they watch and listen.

5) **Invite** students to share their reactions and any additional questions that came up as they watched the video. Refer to the **Creative AI Teacher Version** to guide the class discussion.

Take a Stand: Original Author Dilemma

20 mins.

1) **Say**: Artificial intelligence tools are shaping the world around us, and that includes what happens here at school. One of the big issues that generative AI raises has to do with how we talk about and address plagiarism at school (Slide 7). Now that technology has the power to create seemingly "original" work, where do we draw the line for the appropriate use of these tools at school? And if everyone starts using tools like these, how will students develop the skills needed to write well?

2) **Distribute** the **Original Author Student Handout** and invite a student to read aloud the "Original Author" dilemma in Part 1 (**Slide 8**).

3) **Explain** that the class will be asked to take a stand on the question at the end of the dilemma.

Take a Stand is a thinking routine for exploring perspectives on dilemmas about community and civic life. **Learn more** about teaching with digital dilemmas and thinking routines.

4) **Show** the steps of Take a Stand (**Slide 9**) and facilitate the class discussion and activity. Have students follow along and take notes on their handout.

Note: For detailed facilitation guidance and suggestions to enrich your class discussion, use the **teacher version** of the "Original Author" handout.

5) **Say**: The aim of this activity was not to lead us to a "right" answer. Rather, the goal was to slow our reactions down, take time to listen to different perspectives, and be reflective about our stance on this dilemma.

Reflect: Complicate It!

15 mins.

1) **Say**: You all have already shared some really important considerations for why the use of these kinds of tools in schools isn't necessarily all bad or all good. Let's continue to dig a bit deeper.

2.P**roject Slide 10** and have groups choose at least two of the questions to discuss (also in Part 2 of the "Original Author" handout).

Refer to Part 2 of the **teacher version** of the "Original Author" handout for ideas on what each question might address. Be sure to allow space for students to share their responses and perspectives — the more perspectives, the better!

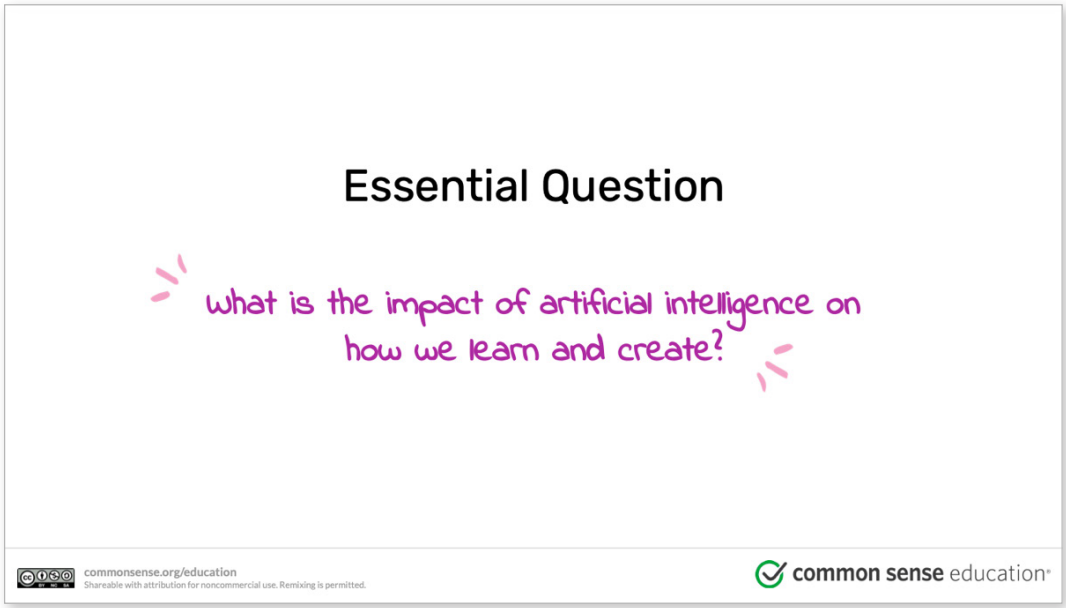
3) **Optional**: If you have time, work collaboratively with your students to develop shared norms or a classroom charter outlining what you consider to be ethical use of generative AI tools, such as ChatGPT.

And if you want to continue the discussion with your class, here are a few additional resources we recommend exploring:

- Greg Rosalsky and Emma Peaslee. (Jan. 17, 2023). **This 22-year-old is trying to save us from ChatGPT before it changes writing forever. NPR**.

- Michael Elsen-Rooney. (Jan. 3, 2023). **NYC education department blocks ChatGPT on school devices, networks. Chalkbeat New York**.

Lesson Slides:



Learning Objectives

1. Define artificial intelligence (AI) and generative AI
2. Identify the potential impacts of generative AI
3. Use the Take a Stand routine to discuss the ethical use of AI in school

KEY VOCABULARY

Artificial Intelligence (AI)

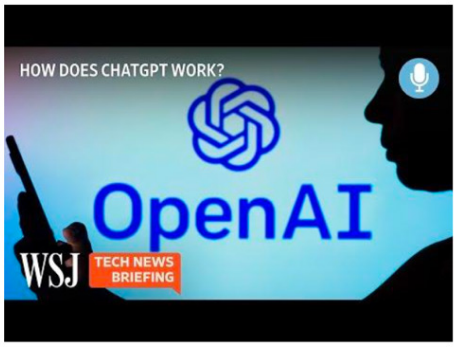
a computer program or app that can perform tasks that typically require human intelligence (e.g., analyzing data, identifying objects, creating images or essays)

KEY VOCABULARY

Generative AI

a type of AI that can create content, including text, images, and audio

WATCH + DISCUSS



Wall Street Journal. (Dec 7, 2022). ChatGPT, Explained: What to Know About OpenAI's Chatbot. (6:59)

- What is ChatGPT and what can it do?
- How was ChatGPT "trained"?
- What are some limitations of generative AI?

KEY VOCABULARY

Plagiarism

using someone's creative work without providing credit to them

GROUP ACTIVITY

Original Author Dilemma

Ada has a writing assignment due tomorrow, but she hasn't started writing. She heard on social media about a tool that can create an outline or even an entire paper using a simple prompt. She decides to use the tool to help her finish the assignment on time.

She types the assignment prompt into the tool and the tool generates a five-paragraph essay. Ada reviews the essay that the tool wrote. She changes a few words throughout the paper and writes a new conclusion paragraph based on information she learned in class. Ada submits the assignment to the teacher on time.

Was it OK that Ada used this tool for the assignment?

GROUP ACTIVITY

Take a Stand

On your own	**TAKE A STAND** What do you think? Explain your perspective.
As a group	**STAND BACK** Where do your classmates stand? Listen to their perspectives.
On your own	**LOOK AGAIN** Look again at your original response. What had you not considered that other people brought up?
As a group	**LOOK BEYOND** Look beyond this specific case. How does this dilemma remind you of other situations we've explored in class or that you've seen, heard about, or experienced?

GROUP ACTIVITY

Complicate It!

Choose **at least two** of the questions to discuss in your group

1. What if Ada cited the tool as a resource in her assignment?
2. What if Ada used the tool to create an outline, but then wrote the entire paper herself?
3. What if Ada's teacher used the same tool to give students feedback on their essays?
4. Should assistive writing (generative AI) technology be banned in schools?

Acknowledgments

We would like to express our gratitude to our funders, DSIT, and to our stakeholder partner, Common Sense Media, and especially Ms Jenna Khanna of Common Sense UK. Our profound gratitude goes to our research assistants: Saumyadeep Mandal, Debanjali Biswas and Manasvi Nag for their exemplary support; and to our advisory board: Ms Bethany Marris, Professor John Potter and Dr Mariya Stoilova for invaluable advice. Finally we cannot express our thanks strongly enough to all the school leadership teams, teachers and children who participated in the project, and without whom the project would have been impossible. Your valuable input and collaboration are sincerely appreciated.

lse.ac.uk/media-and-communications

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