DIGITAL TRANSFORMATIONS FOR HEALTH LAB

GOVERNING HEALTH FUTURES 2030

Digital citizenship education for the health and well-being of young people in Europe

Hein Thu, November 2025

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CONTENTS

ABBREVIATIONS

AI	Artificial Intelligence
BIK+	Better Internet for Kids Plus Strategy
CoE	Council of Europe
DC4H	Digital Citizenship for Health
DCE	Digital Citizenship Education
DSA	Digital Services Act
EC	European Commission
ET 2020	Education and Training 2020 Strategic Framework
EU	European Union
OECD	Organisation for Economic Co-operation and Development
RFCDC	Reference Framework of Competences for Democratic Culture
SCT	Social Cognitive Theory
SDT	Self-Determination Theory
UHC	Universal Health Coverage
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
WHO	World Health Organization

EXECUTIVE SUMMARY

This study examines how digital citizenship education (DCE) can enhance the health and well-being of young people across Europe. Although the merits of digital and civic literacies are well established, their links to health and well-being remain limited. The research focuses on three related topics: existing DCE initiatives in Europe, how DCE competencies influence youths' motivation to engage online and how current DCE policy frameworks align with youth health and well-being.

Using a structured desk review and conceptual synthesis, the study analysed 28 initiatives, across 24 countries and 25 policy frameworks. Guided by the Council of Europe's DCE Competence Framework – being online, well-being online and rights online (Richardson & Milovidov, 2019) and informed by self-determination and social cognitive theories (Deci & Ryan, 2012; Bandura, 2001), the analysis identified five motivational pathways: competence-based, identity-based, social, intrinsic and structural barriers.

DCE is increasingly integrated into school curricula across Europe, yet its connection to health and well-being remains inconsistent. Only 57 per cent of initiatives included health-related components and just one-third covered all three DCE domains comprehensively. Youth motivation to engage online is shaped by self-efficacy, belonging and creative autonomy, but is limited by digital divides and unequal access. At the policy level, few frameworks explicitly link DCE to health outcomes, leaving a gap between civic participation and health promotion. These findings highlight that digital participation is still framed largely as a civic or technological pursuit, rather than a determinant of health.

Key messages and recommendations:

- Digital citizenship education holds transformative potential when aligned with youth health engagement. Realizing this potential requires moving beyond siloed literacies or tokenistic inclusion (Benson et al., 2023).
- Co-design, capacity-building and policy alignment are needed to empower youth as rights-holders, creators and decision-makers in digital health ecosystems.
- The European Year of Digital Citizenship Education 2025 offers a timely opportunity to embed health within digital citizenship discourse and practice (Council of Europe, 2025).
- Education, health and digital sectors should collaborate to integrate mental health literacy, digital self-care and ethical participation into learning outcomes.
- Future DCE efforts must prioritize inclusive governance, teacher training and participatory mechanisms, to ensure that young people are not only protected in digital spaces, but are also actively shaping them.

By embedding health within digital citizenship education, Europe can foster a generation of empowered, ethical and health-conscious digital citizens who co-create fairer and more resilient digital societies.

INTRODUCTION

Digital citizenship in the age of health transformation

Digital citizenship, as a framework, extends beyond mere digital competence or online safety. It encompasses the ability to participate in meaningful digital environments, rooted in the values of human rights, democratic participation and social inclusion (Mossberger et al., 2007). In its essence, digital citizenship comprises engagement in online communities through creating, collaborating, sharing and learning - with a critical, ethical and participatory mindset. In the context of the digital transformation era, especially in health, digital citizenship is emerging as a necessary competency for navigating complex relationships between technology, well-being and governance (Kickbusch et al., 2021).

This evolving concept has gained traction in education and policy discourse. The Council of Europe defines digital citizenship as "the capacity to participate actively, continuously and responsibly in communities online and offline, through competent and positive engagement with digital technologies" (Council of Europe, 2025a). This includes not only technical skills but also the ability to understand rights and responsibilities, protect privacy and foster respectful interactions. Digital citizenship bridges the spheres of education, human rights, civic engagement and technology governance (Emejulu & McGregor, 2019). Yet, this conceptual framing has rarely been extended into the domain of health. As digital tools have expanded to health communications and service delivery, especially since the COVID-19 pandemic, the need to redefine digital citizenship in health contexts have become urgent (Buchholz et al., 2020).

From this perspective, digital citizenship is not just about protecting youth online; it is about enabling them to become informed agents in digital societies who are capable of shaping health policies, participating in public discourse and holding institutions accountable (Eldeeb et al., 2025). Especially in Europe, where democratic engagement and digital rights are policy priorities, the intersection between digital citizenship and health policy remains underexplored but increasingly relevant (Golob et al., 2024). Moreover, the Digital Citizenship for Health (DC4H) framework emphasizes that digital citizenship extends into areas of environmental and healthcare resilience (DTH-Lab, 2025). Youth are not just passive consumers of digital tools but active co-creators of ethical, sustainable and inclusive digital health ecosystems. In the face of rising global challenges like universal health coverage, digital platforms must support not only individual health agencies but also collective civic participation, to drive resilient and equitable systems (Jain & Dasgupta, 2025).

Literacy, youth agency and the path to health participation

Digital Literacy, often described as the foundation of digital citizenship, encompasses a range of competencies beyond technical skills (Pangrazio et al., 2020). It includes information literacy, critical thinking, online communications, ethical reasoning and the ability to navigate, evaluate and create digital contents. When combined with civic literacy and health literacy (Berkman et al., 2010; Milner, 2002), it becomes a powerful enabler of youth agency in health governance and decision-making processes. These three literacies form the core of digital citizenship for health (DTH-Lab, 2025). They collectively determine young people's ability to engage meaningfully in digital health ecosystems, make informed decisions and contribute to public health discourse. However, youths often face significant barriers such as difficulty distinguishing between reliable and unreliable information, insufficient educational support and systemic inequalities such as digital exclusion, discrimination and lack of representation in decision-making processes (Helsper, 2011). Many youths struggle to critically access online health content or navigate complex data privacy issues, while others face systemic barriers which prevent their voices from being included in health-related dialogues (Head, 2011).

Empirical research suggests that while European youth are digitally active, their engagement with public and health-related issues online is inconsistent. The report *European Youth and Digital Engagement: Attitudes, Skills and Civic Participation* highlighted that many young Europeans express a strong interest in civic issues but lack opportunities, skills or institutional pathways to engage meaningfully (Tsouparopoulou et al., 2025). Digital engagement remains shaped by socioeconomic status, gender, geography and cultural background, with marginalized youth often facing the greatest obstacles (Charmaraman et al., 2022).

Nevertheless, there are promising developments. In most European countries, digital literacy has been integrated into school curricula as part of broader citizenship education (European Commission, 2021a). These programmes emphasize ethical participation, critical media analysis and digital creativity. Still, health-related competencies are often underdeveloped within these programmes and few directly link digital literacy to health system engagement or youth health rights. A comprehensive review by DTH-Lab of 38 platforms aimed at digital, civic or health literacy found that most were fragmented and rarely addressed all three domains (Ogundipe, 2025). While platforms like Kolibri and the Digital Citizenship+ Resource Platform offer rich content, few such platforms are co-designed with young people or tailored to their health-specific realities. As such, the current landscape fails to fully prepare youth to act as digital health citizens: individuals capable of both managing their health and contributing to collective health governance (Eldeeb et al., 2025).

This gap between access and agency highlights the need for digital citizenship education in order for health to evolve. If young people are to act as partners in shaping digital health systems, they need more than access to quality health content online; they require education that develops the critical awareness required to distinguish credible information from misinformation, the participatory skills to engage meaningfully in digital dialogues and the ethical judgment to navigate the social and moral implications of health information and technologies (World Health Organization, 2020). Such education must also recognize and adapt to their diverse lived experiences, especially across Europe's varying sociopolitical and cultural contexts. Furthermore, models of tech-health equity training, such as those in social work education, have shown the importance of cultivating digital self-efficacy, both reactive (responding online) and generative (creating content), to overcome Internet anxiety and empower youth for civic and health-related engagement (Funk & Wilkerson, 2025). Embedding this into educational settings not only strengthens participation but also supports a more inclusive digital future.

Safe, inclusive and ethical participation: governance and education in the digital sphere

While digital literacy provides the tools for engagement, youth participation in health-related digital spaces is only meaningful when those spaces are safe, inclusive and governed ethically. The risks young people face online, such as harassment, surveillance, misinformation, exclusion and data exploitation, are well-documented (Digital Health and Rights Project Consortium, 2025; El Asam & Katz, 2018). For youth to participate confidently in digital health platforms, governance structures must prioritize both protection and empowerment (World Health Organization, 2020).

Traditionally, safeguarding in digital education has emphasized risk prevention: protecting children from harmful content, predatory behaviour or privacy violations. However, this protectionist approach often sidelines youth agency (Warrington & Larkins, 2019). The role of governance is critical here. Platforms, institutions and governments must adopt transparent, accountable and inclusive moderation and governance models that uphold digital rights (United Nations, 2021), balancing the right to protection with other rights such as access to information. In Europe, efforts like the Safer Internet Centres (European Commission, 2025) and national digital ethics frameworks have sought to institutionalize safety and responsibility online. These efforts are critical to ensuring that online environments more broadly support young people's well-being; however, they seldom extend into youth participation in health-related digital spaces, with health agencies or ministries typically playing a limited role in digital governance and online safety initiatives (Castro Lopes et al., 2025).

Moreover, education plays a transformative role in shaping ethical digital behaviour. Digital citizenship education can help youth understand privacy rights, identify misinformation

and advocate for inclusive technologies. It can also empower them to engage in platform governance, for example, by serving on youth advisory panels, participating in policy consultations or co-designing content moderation standards (Richardson & Milovidov, 2019). Examples of youth-led or youth-inclusive initiatives exist. Platforms like ReachOut, The Mix (UK), Youth Mental Health Project (US) and tech-health training programmes for social work students offer promising templates (McGorry et al., 2022). These initiatives demonstrate how structured support can build self-efficacy, data literacy and a sense of agency among youth engaging with health platforms.

In the European context, there is growing recognition of the need for participatory governance. The European Commission's Digital Services Act (European Commission, 2022b) and the Council of Europe's emphasis on youth inclusion provide legal and policy frameworks to support ethical participation. However, operationalizing these frameworks, especially in the health domain, requires targeted investments in digital citizenship education. Equally important is addressing disparities in digital access and inclusion. Youth with disabilities, migrant youth, LGBTQ+ youth and those in rural or economically disadvantaged areas often lack access to secure and empowering digital spaces (Charmaraman et al., 2022). Any meaningful framework for digital citizenship education must centre equity, cultural relevance and social justice to avoid further exacerbating health inequalities. By integrating governance literacy into digital citizenship education, youth can be empowered to recognize the structures that shape their digital experiences and to influence those structures in turn. This means teaching not just "how to be safe" but "how to build safe systems". It means supporting young people not only as users of digital health platforms but also as shapers of them.

Moving forward: a youth-centred vision for digital citizenship education for health

Digital citizenship education holds transformative potential when aligned with youth health engagement. But realizing this potential requires moving beyond siloed literacies or tokenistic inclusion (Benson et al., 2023). It requires co-design, capacity-building and policy alignment that supports youth as rights-holders, creators and decision-makers in digital health ecosystems. The European Year of Digital Citizenship Education in 2025 provides a timely opportunity to embed health into digital citizenship discourse and practice (Council of Europe, 2025b). By integrating health competencies into digital education, investing in youth-led platform design and operationalizing inclusive governance models, Europe can lead the way in redefining what it means to be a digital health citizen. Ultimately, digital citizenship education must equip young people not only to navigate the digital world, but also to reshape it – with equity, ethics and health at the centre.

This introduction sets the stage for the current research project conducted under the Digital Transformations for Health Lab (DTH-Lab), which aims to explore how digital citizenship education can be leveraged to enhance youth participation in health governance. The project is guided by three key research questions:

1. What kinds of initiatives and interventions to digital citizenship education exist in Europe and how are they implemented across different education systems, policy frameworks and community settings?
2. How do the competencies and values promoted by digital citizenship education influence young people's motivation to engage with digital platforms?
3. Which existing policy frameworks within digital citizenship education are connected to or supportive of, the health and well-being of young people?

Through this lens, the research contributes to DTH-Lab's broader mission of building a world where youth are not just beneficiaries of digital health solutions, but active shapers of their health futures. The three research questions were chosen to capture a holistic understanding of digital citizenship education – from its structural foundations and pedagogical practices to its psychological and motivational impacts. In particular, examining young people's motivation to engage with digital platforms is crucial, as participation in digital health governance depends not only on technical access or literacy but also on the willingness and confidence to act. Motivation influences how youth perceive their agency, sustain engagement and translate digital competencies into meaningful contributions to health-related dialogue and decision-making. By understanding these motivational pathways, the study aims to uncover how educational environments can nurture empowered, ethically grounded and health-conscious digital citizens.

METHODS

Research framework

This study employs a qualitative, structured desk review to investigate how digital citizenship education (DCE) in Europe enables youth participation in digital health governance. The research is designed in two stages:

1. Stage 1: A mapping of existing initiatives and interventions, followed by reflexive thematic analysis (Braun & Clarke, 2019) of the competencies which promote the participation of young people on digital platforms.
2. Stage 2: A conceptual synthesis (Geels, 2004) of existing policy frameworks within digital citizenship education, identifying those that are connected to, or supportive of, the health and well-being of young people.

Data sources

The study relies exclusively on secondary, desk-based sources, including:

- Peer-reviewed academic literature from Scopus and PubMed
- Grey literature such as reports from the Council of Europe, European Commission, WHO and UNICEF

Search strategy

The search strategy was designed to identify both empirical studies and grey literature relevant to digital citizenship education (DCE) initiatives and interventions in Europe (Stage 1), as well as existing policy frameworks (Stage 2). Searches were conducted across academic databases and institutional websites, supplemented by reference snowballing.

Stage 1: Structured desk review of initiatives and interventions (RQ1 and RQ2)

For the mapping of initiatives and interventions, searches were carried out in Scopus and PubMed using combinations of keywords and Boolean operators. Search terms included:

- Core concept: “digital citizenship education” OR “digital literacy” OR “media literacy” OR “civic literacy”
- Youth dimension: “youth” OR “young people” OR “adolescents” OR “students”
- Geographic filter: “Europe” OR “European Union” OR “Council of Europe” OR individual country names
- Health relevance: “health policy” OR “digital health” OR “health literacy” OR “health governance”

An example of a search string was:

("digital citizenship education" OR "digital literacy") AND ("youth" OR "young people") AND ("Europe" OR "European Union") AND ("health policy" OR "digital health")

Grey literature was identified from official repositories and organizational websites, including the European Commission, Council of Europe, UNICEF and WHO. Reports and project databases (e.g., Erasmus+, Horizon Europe, Better Internet for Kids) were also searched to capture non-academic initiatives and interventions.

Stage 2: Conceptual synthesis of policy/ frameworks (RQ3)

For the analysis of existing policy frameworks, targeted searches were conducted in Scopus, PubMed and institutional repositories. The review aimed to identify policy and normative frameworks within digital citizenship education that are connected to or supportive of the health and well-being of young people. Key sources included rights-based participation frameworks, digital governance guidelines and European legal instruments relevant to youth and digital engagement.

Search terms included:

- Core concept: "digital citizenship education" OR "digital literacy" OR "media literacy" OR "civic literacy"
- Youth dimension: "youth" OR "young people" OR "adolescents" OR "students"
- Document type: "policy" OR "framework"

Searches were complemented by a review of policy briefs, reports and toolkits from leading organizations such as UNICEF, the Council of Europe, UNESCO and the European Commission.

Inclusion and exclusion criteria

This study applied inclusion and exclusion criteria consistently across both stages to ensure the relevance and quality of sources analysed.

Inclusion criteria

1. Studies, policy documents or conceptual papers focused on youth aged 15–29 in European contexts.
2. Sources addressing digital citizenship education and its relationship to youth participation, empowerment or engagement in digital spaces.
3. Literature or frameworks that discuss competencies, values or policy approaches relevant to digital citizenship education.

4. Publications providing sufficient conceptual or empirical detail on competencies, values or policy frameworks relevant to digital citizenship education.

Exclusion criteria

1. Studies not targeting youth populations (outside the 15–29 age range).
2. Sources from non-European contexts.
3. Papers or documents lacking adequate detail or conceptual clarity regarding digital citizenship education or related outcomes.
4. Non-English publications and purely technical or infrastructural analyses unrelated to education, participation or well-being.

Data extraction

Data extraction was conducted concurrently with the review process. For Stage 1, each identified digital citizenship initiative or intervention was systematically documented, including its title, reference source, country of implementation, leading organization or institution, type and mode of delivery, target population, linkage to relevant policies or frameworks, connections to health and well-being perspectives, reported outcomes or evaluations and the specific domains addressed within the Council of Europe's Digital Citizenship Education (DCE) framework (Richardson & Milovidov, 2019) – "being online", "well-being online" and "rights online".

For Stage 2, data extraction focused on identifying and organizing policy and framework documents that were conceptually or thematically related to digital citizenship education (DCE). Although not all documents were designed as DCE-specific frameworks, each incorporated principles relevant to digital citizenship, such as digital literacy, participation, inclusion, safety or democratic engagement. For each policy or framework, key details were systematically recorded, including the title, institute, publication year, description and evidence sentences.

Data analysis

Stage 1 (RQ1 and RQ2)

The Stage 1 analysis served as both a descriptive mapping and an initial competence assessment of existing digital citizenship education initiatives across Europe. The analysis applied the Council of Europe's Digital Citizenship Education (DCE) Competence Framework (Richardson & Milovidov, 2019) as the guiding structure, organized under three overarching domains: being online, well-being online and rights online. Each initiative was reviewed for explicit evidence of the competencies defined within these domains. A binary coding system was used:

1 = Criterion present – explicit and verifiable evidence that the initiative addressed the specified element.

0 = Criterion absent – no explicit evidence found in available materials.

Supplementary Material 1 represents the analytical framework based on DCE domains and assessment criteria.

For Research Question 2, a second deductive coding was conducted on the results and evaluation sections of each initiative. Excerpts were tagged to one or more DCE domains (being online, well-being online, rights online) to determine where evidence of learning or behavioural outcomes clustered. After domain tagging, a theory-informed template analysis was used to interpret how these outcomes reflected motivational mechanisms. To build the initial interpretive frame, the researcher used an AI assistant to generate preliminary candidate themes based on concepts from self-determination theory (SDT) (Deci & Ryan, 2012) and social cognitive theory (SCT) (Bandura, 2001). The author reviewed and refined these suggestions for conceptual accuracy and fit with SDT/SCT constructs, creating a final five-category template:

1. Competence-based motivation (self-efficacy and confidence)
2. Identity-based motivation (civic and peer identity)
3. Social motivation (belonging and collaboration)
4. Intrinsic motivation (autonomy and creativity)
5. Barriers (digital divide and structural constraints)

This template was applied deductively to the domain-tagged excerpts to characterize motivational pathways within each DCE domain. No new top-level themes were introduced beyond those refined from the list. As a single-reviewer study, inter-rater reliability could not be established. To enhance trustworthiness, the researcher applied consistent operational definitions (Supplementary Material 1), maintained an audit trail of coding decisions and conducted iterative reviews to ensure internal consistency. A conservative coding approach was used, marking items as absent when evidence was unclear, to strengthen the dependability of findings despite the single-reviewer design.

Stage 2 (RQ3)

The Stage 2 analysis aimed to determine the extent to which existing DCE related policy frameworks address or support the health and well-being of young people. Each framework was reviewed using a three-tier coding system that categorized the strength of its linkage to youth health and well-being as:

1. Explicit linkage – clear and intentional mention of health, well-being, mental health, safeguarding or psychosocial outcomes.

2. Implied or indirect linkage – implicit references through inclusion, participation or safety without explicit health language.
3. Minimal or no linkage – absence of identifiable health- or well-being-related focus.

Coding was conducted conservatively to avoid over-attribution. The complete set of operational definitions and refined coding criteria are provided in Supplementary Material 2. Following classification, frameworks were grouped by linkage level and representative excerpts were selected from two to three exemplar documents to illustrate the coding rationale.

Limitations

Several limitations must be acknowledged:

- Single reviewer: The structured desk review was conducted by one researcher, which may introduce bias in screening and selection. While efforts were made to ensure transparency in the search strategy and inclusion/exclusion criteria, independent screening and inter-rater reliability could not be implemented.
- Secondary data dependence: The analysis relies entirely on publicly available literature, policy documents and organizational reports. As such, findings may underrepresent grassroots or locally documented initiatives/ interventions with limited online visibility.
- Lack of primary youth perspectives: The study does not include new interviews or surveys with young people. Insights on motivation and barriers (RQ2) therefore depend on reported outcomes and theoretical models rather than lived experience.
- Language limitation: Only publications available in English were included, which may have excluded relevant evidence published in other European languages and introduced a regional or linguistic bias in the dataset.

Despite these limitations, the structured desk review and conceptual synthesis offer a transparent, rigorous and feasible approach for mapping initiatives/ interventions, analysing competencies and distilling normative models of youth digital participation for health governance.

RESULTS

Characteristics of digital citizenship education initiatives across Europe

A total of 28 digital citizenship education initiatives and interventions were identified across 24 European countries (Table 1). The initiatives represented a geographically diverse sample, with the highest numbers observed in Italy (39.3 per cent), Spain and Greece (each 32.1 per cent) and France (25.0 per cent). This distribution suggests that countries in Western Europe have played leading roles in developing structured programmes on digital citizenship.

Most initiatives were curriculum-integrated (64.3 per cent), indicating that digital citizenship competencies are increasingly embedded within formal education systems rather than being delivered as stand-alone or extracurricular activities. Workshops (39.3 per cent), toolkits (25.0 per cent) and campaigns (17.9 per cent) complemented these efforts, showing that many countries use mixed strategies to reach both teachers and learners. In terms of delivery mode, hybrid formats (53.6 per cent) combining online and in-person components were most common, followed by in-person (28.6 per cent) and online-only (17.9 per cent) approaches, reflecting Europe's gradual transition toward blended learning environments.

The primary target groups were young people and students (41.7 per cent), followed closely by educators (37.5 per cent) and other youths such as disadvantaged and incarcerated (20.8 per cent). A smaller proportion (20.8 per cent) included parents, highlighting the recognition of family involvement in promoting safe and responsible digital engagement among young people. Half of all initiatives (50.0 per cent) explicitly referenced the Council of Europe's Digital Citizenship Education Framework (Richardson & Milovidov, 2019), demonstrating its strong influence as a unifying policy instrument across Europe. Others drew on complementary frameworks such as the ET 2020 Strategic Objectives, the EU DigComp 2.2 Competence Framework, the EU Digital Education Action Plan and the UNESCO AI Competency Framework, showing that European and global policy references coexist and reinforce one another (European Commission, 2021a, 2021b, 2022a; UNESCO, 2024).

More than half of the initiatives (57.1 per cent) explicitly incorporated health and well-being perspectives, commonly through digital safety, emotional resilience, empathy or mental-health-related content. These linkages show an expanding understanding of digital citizenship as closely intertwined with digital well-being and psychosocial health. However, only one-third of the initiatives (32.1 per cent) demonstrated comprehensive coverage of all three DCE domains – being online, well-being online and rights online –

indicating that most programmes still emphasize selected aspects of digital competence, rather than addressing citizenship, safety and rights in an integrated way.

Table 1 Characteristics of digital citizenship education initiatives / interventions in Europe (n = 28)

	Initiatives / interventions (n=28)
Country, n (%)	
Austria	4 (14.3)
Belgium	4 (14.3)
Bulgaria	2 (7.1)
Cyprus	4 (14.3)
Czech Republic	1 (3.6)
Denmark	3 (10.7)
Estonia	2 (7.1)
Finland	2 (7.1)
France	7 (25.0)
Germany	5 (17.9)
Greece	9 (32.1)
Hungary	1 (3.6)
Ireland	4 (14.3)
Italy	11 (39.3)
Latvia	1 (3.6)
Malta	2 (7.1)
Norway	2 (7.1)
Poland	4 (14.3)
Portugal	6 (21.4)
Romania	5 (17.9)
Serbia	1 (3.6)
Slovenia	1 (3.6)
Spain	9 (32.1)
Turkey	1 (3.6)
Type of Initiative/ intervention, n (%)	
Curriculum-integrated	18 (64.3)
Workshop	11 (39.3)
Toolkit	7 (25.0)
Campaign	5 (17.9)
Mode of delivery, n (%)	
Hybrid	15 (53.6)
In-person	8 (28.6)
Online	5 (17.9)
Target Population, n (%)	
Youth (Students)	10 (41.7)
Educators	9 (37.5)
Youth (Others)	5 (20.8)
Parents	5 (20.8)

	Initiatives / interventions (n=28)
Linked Policy / Framework, n (%)	
Council of Europe DCE Framework	14 (50.0)
ET2020 Strategic Objectives	2 (7.1)
EU DIGCOMP concepts	2 (7.1)
EU Digital Education Action Plan	5 (17.9)
UNESCO AI Competency Framework	2 (7.1)
Others	19 (68.4)
None	5 (17.9)
Impact of health & well-being, n (%)	
Yes	16 (57.1)
No	12 (42.9)
Coverage of all DCE domains, n (%)	
Yes	9 (32.1)
No	19 (67.9)

DCE competencies coverage across different initiatives/ interventions

All ten competencies of the Council of Europe's Digital Citizenship Education (DCE) Framework (Richardson & Milovidov, 2019) were represented to varying degrees across the 28 initiatives (Figure 1). Overall, competency coverage was high, with several competencies – Learning and Creativity, Media and Information Literacy, Ethics and Empathy, e-Presence and Communication, Rights and Responsibilities and Privacy and Security – appearing in all initiatives (100 per cent). These results indicate a strong alignment of European digital citizenship initiatives with the core DCE vision, emphasizing creative participation, ethical behaviour and responsible engagement online.

Competencies such as "access and inclusion" (27, 96.4 per cent) and "ctive participation" (27, 96.4 per cent) were also highly prevalent, showing that most programmes explicitly promote inclusivity and civic involvement in digital spaces. By contrast, coverage of "health and well-being" (16, 57.1 per cent) and "consumer awareness" (14, 50.0 per cent) was notably lower. These two areas appear to be less consistently integrated into existing DCE initiatives, reflecting a continued focus on technical and participatory skills over personal well-being and consumer literacy. The detailed mapping table is described in Supplementary Material 3.

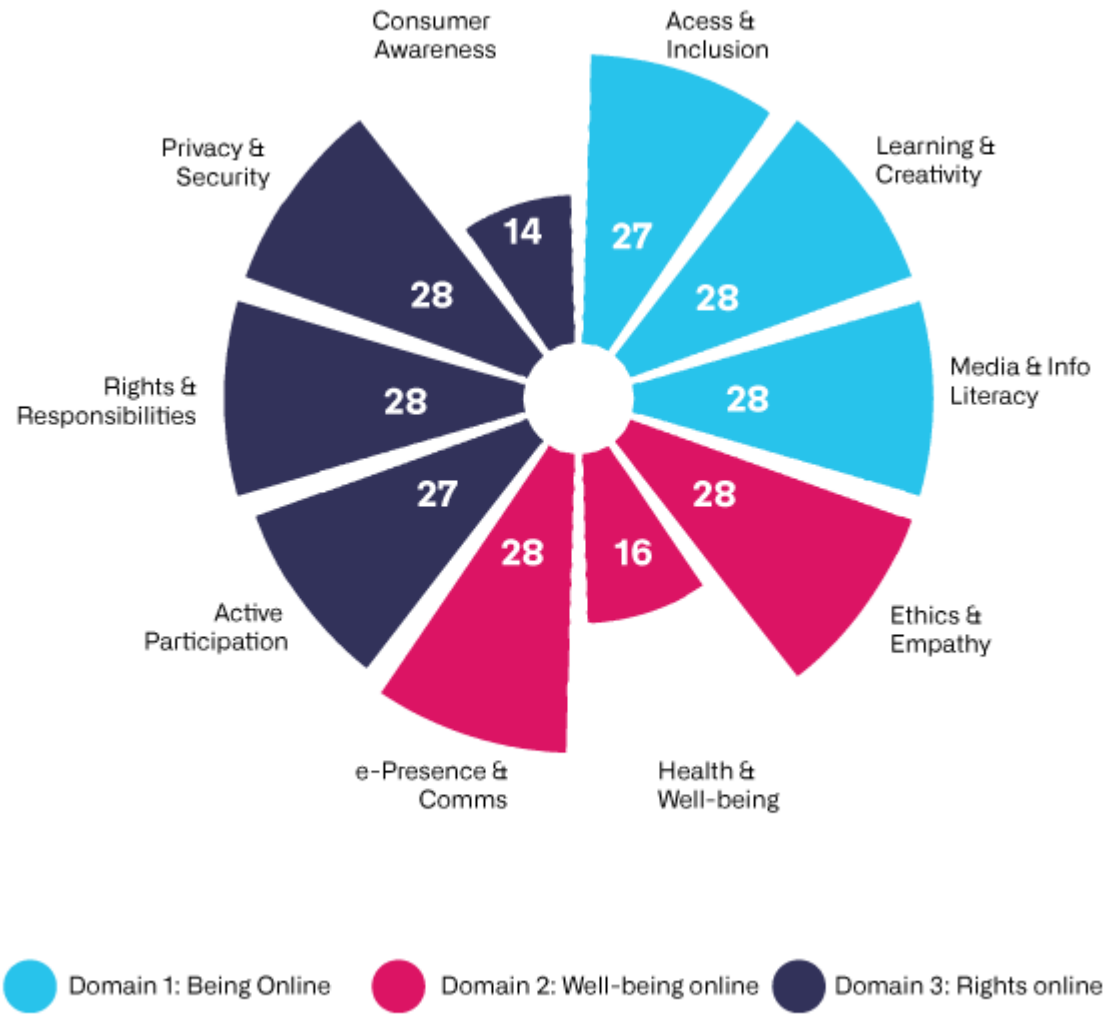

Figure 1: Coverage of digital citizenship education competencies across analysed initiatives/ interventions (grouped by the three domains)

Motivational pathways interpreted from digital citizenship education competencies

To complement the quantitative mapping of DCE competencies, a qualitative, theory-informed analysis was undertaken to examine how the competencies and values promoted by digital citizenship education (DCE) relate to young people's motivation to engage with digital platforms. Drawing from descriptive accounts and reported outcomes across 28 European initiatives, the analysis proceeded in two layers: deductive coding of

results and evaluation excerpts using the three DCE domains (being online, well-being online, rights online) and template-based interpretation of motivational mechanisms informed by self-determination theory (SDT) and social cognitive theory (SCT). This process resulted in five motivational pathways: competence-based motivation, identity-based motivation, social motivation, intrinsic motivation and barriers and inequalities.

1. Competence-based motivation: building self-efficacy and digital agency

Competence-related motivation was most frequently aligned with the being online domain, particularly the competencies of learning and creativity and media and information literacy. Initiatives that engaged students in digital storytelling, coding and problem-solving strengthened self-efficacy and confidence. This sense of mastery fostered digital agency: the belief that young people could shape their online environment through skill and creativity. The data indicate that competence-building remains the strongest and most consistent motivational driver across initiatives.

2. Identity-based motivation: civic and peer expression

Identity-based motivation showed comparable alignment with being online and rights online domains. Initiatives that linked digital participation with civic engagement, such as online campaigns, debates or creative activism, helped participants connect personal and social identities. Young people reported being more motivated when digital spaces were positioned as platforms for voice and belonging. This reflects the dual nature of identity-based motivation: self-expression through digital media and civic responsibility through online participation.

3. Social motivation: collaboration and belonging

Social motivation was relatively balanced across all three DCE domains, though slightly higher in being online. Projects emphasizing teamwork, peer learning and co-creation fostered empathy and cooperation. These experiences demonstrated that social connection is a cross-domain motivator: collaboration cultivates both emotional well-being and a sense of collective digital citizenship. The emphasis on respectful communication and inclusion reinforced the perception that online spaces can be both supportive and educationally meaningful.

4. Intrinsic motivation: autonomy and creative fulfilment

Intrinsic motivation also appeared to be distributed across domains, with modest variation. It was particularly strong in initiatives under being online that promoted creative freedom and self-directed exploration. Opportunities to pursue personal interests, such as digital art, podcasts or community storytelling, enhanced enjoyment and curiosity. This finding

echoes self-determination theory, where autonomy and intrinsic interest sustain engagement beyond external incentives.

5. Barriers and inequalities: structural and contextual constraints

The analysis revealed that barriers and inequalities were most concentrated in the being online domain. Limited access to devices, digital literacy gaps and inconsistent teacher support frequently constrained participation. These findings highlight that while motivation thrives on competence and connection, it is undermined by infrastructural and institutional inequalities. Without addressing access and readiness issues, DCE risks amplifying rather than reducing participation divides.

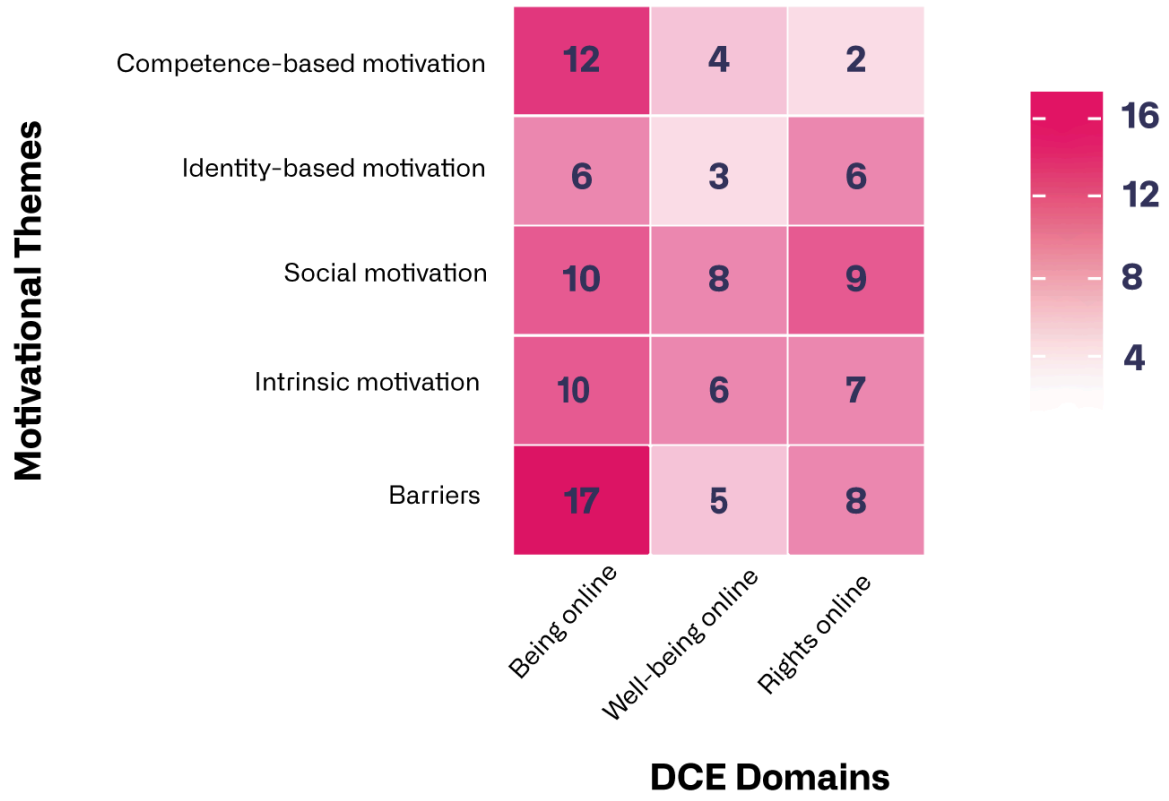

Figure 2 Alignment of motivational themes with the three domains of DCE framework. Each cell shows the number of coded instances where a motivational theme is aligned with a DCE domain (being online, well-being online, rights online). Counts were derived from the coding process in which the outcomes and evaluations of initiatives/ interventions could contribute to multiple domains. Higher values indicate stronger alignment between specific motivational pathways and DCE competencies.

Linkages between DCE-related policy frameworks and youth health and well-being

The review identified a set of European and international policy frameworks that, while not exclusively designed as digital citizenship education (DCE) instruments, incorporate key DCE-related principles such as digital literacy, participation, safety and inclusion. Each framework was critically examined for its degree of alignment with youth health and well-being objectives. Based on explicitness and thematic relevance, frameworks were classified into three categories: explicit linkage, implied or indirect linkage and minimal or no linkage (Table 2).

Table 2 Policy and framework documents relevant to digital citizenship education (n = 25) and their linkages to youth health and well-being

Linkage level	Number of policies/ frameworks	Policies/ frameworks (Year of publication)	Evidence from policy and framework documents
Explicit linkage	10	EU Key Competences for Lifelong Learning (**2018**) Digital Citizenship Education Framework (**2019)** Guidelines for Industry on Child Online Protection (**2020**) OECD Recommendation on Children in the Digital Environment (**2021**) General Comment No. 25 on children's rights in relation to the digital environment (**2021**) Better Internet for Kids (BIK+) Strategy (Previous edition - 2012) (**2022**) OECD Recommendation on Creating Better Opportunities for Young People (**2022**) Nordic Think Tank for Tech & Democracy – Thriving and Digitally Literate Citizens (**2023**) 50 Policy Recommendations for Enhancing Civic Engagement of Youth (**2024**) OECD Youth Policy Toolkit (**2024**)	• "Personal, social and learning competence is the ability to reflect upon oneself, effectively manage time and information, work with others in a constructive way, remain resilient and manage one's own learning and career. It includes the ability to cope with uncertainty and complexity, learn to learn, support one's physical and emotional well-being, to maintain physical and mental health and to be able to lead a health-conscious, future-oriented life, empathize and manage conflict in an inclusive and supportive context." (**EU Key Competences for Lifelong Learning**) • "No. 44 - Increased mental health support: Young people are currently facing increased challenges, from digitalisation to global warming and housing crises. Mental health support is necessary to cope with all these problems. The municipality should strive for high-quality, integrated and quick help in the field of mental health. The municipality should support programmes that provide access to affordable or free psychological help." (**50 Policy Recommendations for Enhancing Civic Engagement of Youth**) • "Providing timely, good quality, accessible and affordable physical and mental health support to young people through the health system and in educational institutions, workplaces, employment services and youth centres and promoting literacy of health issues, including reproductive health and mental health." (**OECD Youth Policy Toolkit**)

Linkage level	Number of policies/ frameworks	Policies/ frameworks (Year of publication)	Evidence from policy and framework documents
Implied/ indirect linkage	4	EU Youth Strategy 2019-2027 (Previous edition - 2010-2018) (**2019**) Reference Framework of Competencies for Democratic Culture (RFCDC) (**2020**) Governance for Youth, Trust and Intergenerational Justice (**2020**) WeProtect Global Alliance – Model National Response (incl. Maturity Model) (**2022**)	• "To support youth in their transition to an autonomous life, governments should consider facilitating young people's access to information and counselling in areas such as education, employment and health by providing public services online." (**Governance for Youth, Trust and Intergenerational Justice**) • "National education programme (including age-appropriate, accessible and inclusive content) to raise awareness of all forms of child sexual exploitation and abuse – empowering children, young people, parents, guardians, caregivers and practitioners with relevant information. Systematic training for professionals in education, social care and health." (**WeProtect Global Alliance – Model National Response (incl. Maturity Model)**)
Minimal linkage/ no linkage	11	Global Media and Information Literacy Assessment Framework: country readiness and competencies (**2013**) The Framework for Science Education for Responsible Citizenship (**2015**) Internet Governance Strategy 2016-2019 (Previous edition - 2012-2015) (**2016**) CASEL's SEL Framework (**2020**) Council of Europe Guidance Note on Content Moderation (Freedom of Expression) (**2021**)	• "Encourage "open schooling" where: schools, in cooperation with other stakeholders, become agents of community well-being." (**The Framework for Science Education for Responsible Citizenship**) • "Responsible Decision-making: The abilities to make caring and constructive choices about personal behaviour and social interactions across diverse situations. This includes the capacities to consider ethical standards and safety concerns and to evaluate the benefits and consequences of various actions for personal, social and collective well-being." (**CASEL's SEL Framework)** • "Digital literacy is essential for life in a digitalised world. With computers and algorithms mediating many daily

Linkage level	Number of policies/ frameworks	Policies/ frameworks (Year of publication)	Evidence from policy and framework documents
		Digital Education Action Plan 2021-2027 (Previous edition - 2018-2020) (**2021**) Global Standards for Media and Information Literacy Curricula Development Guidelines (**2021**) EU cooperation in education and training (ET 2020) Strategic Framework (**2021**) Digital Agenda 2022-2025 (**2022**) DigComp 2.2 - The Digital Competence Framework for Citizens (**2022**) UNESCO AI Competency Framework for Students (**2024**)	activities, it is important to educate people at all ages about the impact of digital technology on well-being and the way technology systems work. This is instrumental to developing an understanding of the risks and opportunities of digital technology and encouraging healthy, safe and meaningful uses of digital technology." (**Digital Education Action Plan 2021-2027 (Previous edition – 2018-2020**)

The first group of frameworks presents an explicit connection to young people's health and well-being. These documents name well-being, mental health, safeguarding or psychosocial outcomes as intended aims and translate them into competencies or guidance. Examples include the EU Key Competences for Lifelong Learning (Council of Europe, 2019), which articulates emotion regulation and conflict management within the "personal, social and learning to learn" competence; the Council of Europe Digital Citizenship Education Framework (Richardson & Milovidov, 2019), which defines a health and well-being domain; and the Guidelines for Industry on Child Online Protection (UNICEF, 2015), which detail age-appropriate tools, reporting routes and coordination with child-protection services. Together, these frameworks position well-being as integral to meaningful digital participation.

The second cluster shows an implied or indirect linkage. Here, well-being is advanced through commitments to participation, inclusion or supportive services rather than through explicit health language. For instance, the EU Youth Strategy 2019-2027 (European Union, 2018) emphasizes removing barriers and improving access; the Reference Framework of Competences for Democratic Culture (Council of Europe, 2018) highlights community engagement and project-based learning; and Governance for Youth, Trust and Intergenerational Justice (OECD, 2020) foregrounds supportive online public services for youth transitions. These documents create enabling conditions that can benefit well-being even if they do not define health outcomes.

The remaining documents exhibit minimal or no identifiable linkage under the conservative criteria applied. Competence-focused instruments such as the Global Media and Information Literacy Assessment Framework (UNESCO, 2013) concentrate on readiness and assessment rather than psychosocial outcomes and governance texts like the Internet Governance Strategy 2016–2019 (Council of Europe, 2016) prioritize rights and infrastructure with limited attention to youth health. In these cases, well-being is peripheral or absent.

Overall, the policy landscape shows uneven integration of youth health and well-being within DCE-related frameworks. A substantive subset treats well-being explicitly, a smaller group supports it indirectly through inclusion, safety and participation and many remain primarily skills- or governance-oriented. This pattern suggests opportunities to make well-being goals more visible and measurable within digital-education policy, particularly by coupling competence development with psychosocial aims and safeguarding provisions.

DISCUSSION

This study offers a cross-European overview of how digital citizenship education (DCE) connects to the health and well-being of young people. The findings show that while digital literacy and civic participation are widely integrated into education systems, explicit attention to health remains inconsistent. Most initiatives focus on technical competence or civic engagement, with fewer linking digital participation with psychosocial resilience or digital health literacy. This imbalance highlights a key gap between preparing young people to function in digital environments and equipping them to sustain well-being within them.

The widespread inclusion of competencies such as creativity, media and information literacy and empathy reflects the maturity of digital citizenship as an educational field. Yet, the limited integration of health and well-being indicates that digital participation is still framed mainly as a civic or technological pursuit rather than a determinant of health. Reframing DCE as a health-enabling process would support a broader understanding of how digital systems influence behaviour, belonging and emotional safety. Such a shift would require recognizing that the digital environment is now a determinant of health (Holly et al., 2025), shaping not only access to information but also social connection, inclusion and exposure to risk.

Motivational pathways identified across initiatives suggest that DCE can enhance self-efficacy, identity formation and social connection when learning environments encourage autonomy and creativity. These mechanisms are consistent with established theories of motivation and learning, which associate competence and relatedness with sustained engagement. Importantly, they illustrate that participation in digital spaces is not purely cognitive or technical but deeply emotional and relational. Initiatives that enable co-creation and peer collaboration foster a sense of ownership that extends beyond skill acquisition, cultivating a more confident and empathetic form of digital participation. However, persistent inequities in access, teacher preparedness and infrastructure remain significant barriers. Unless such structural gaps are addressed, digital citizenship education may reinforce existing social and health inequalities instead of reducing them.

At the policy level, few frameworks explicitly link digital competence with health outcomes. Those that do often limit well-being to emotional regulation or safe online conduct, leaving systemic determinants such as misinformation, data governance and inequitable access unaddressed. This narrow focus risks underestimating how digital architectures influence social behaviour, power dynamics and participation in public health discourse. Embedding health within the definition of digital citizenship would ensure that ethical participation includes the ability to protect and promote both personal and collective well-being. It would also align digital education with ongoing efforts to

strengthen digital health literacy, counter misinformation and build public trust in health communication systems.

Education systems occupy a pivotal position in this transformation. Formal curricula can provide reach and institutional stability, while non-formal and peer-led programmes encourage co-creation and innovation. Combining both approaches could balance scale with authenticity and align educational reform with wider goals of youth participation in digital health governance. Collaboration between educators, health practitioners and digital policy actors will be critical to create coherent frameworks that integrate well-being into learning outcomes and pedagogy. Such integration reflects the growing recognition that young people are not only users of digital tools but also potential co-designers of inclusive and equitable digital ecosystems.

The challenge now lies in moving from principle to practice. Embedding health in DCE requires political commitment, investment in teacher capacity and the development of evaluation metrics that capture psychosocial as well as cognitive outcomes. Research should further investigate how digital citizenship competencies influence youth behaviour, social connectedness and engagement with health systems over time. By strengthening these connections, DCE can evolve into a foundation for health-promoting digital societies where participation, inclusion and well-being are mutually reinforcing goals.

CONCLUSION

Digital citizenship education in Europe has made significant progress towards embedding digital and civic competencies within education systems, yet its engagement with health and well-being remains limited. Many initiatives prepare young people to navigate digital environments but give less attention to how digital life influences emotional balance, inclusion and resilience. Integrating health, empathy and ethical reflection into DCE frameworks would help young people not only to use technology effectively but also to sustain well-being and participate responsibly in digital societies.

Advancing this agenda requires strong collaboration between education, health and digital sectors. Policies should identify well-being as a measurable learning outcome and include competencies such as mental health literacy, digital self-care and data ethics within citizenship education. Teacher training must also equip educators to address the psychosocial and ethical aspects of digital life, enabling them to guide informed discussion on online safety, misinformation and equity. Beyond formal schooling, participatory mechanisms that include youth advisory groups, co-design processes and community-based learning can ensure that young people's perspectives shape future curricula and policy decisions.

Evaluation frameworks should evolve to capture empowerment, empathy and inclusion as key indicators of success. Evidence from such assessments can guide policies that link digital learning with health promotion and equity. Sustained partnerships among schools, public health agencies and civil society will be essential to make these reforms effective and enduring. Aligning digital citizenship education with health and collective well-being can help Europe cultivate a generation of digital citizens who contribute to fairer and more resilient digital societies.

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SUPPLEMENTARY MATERIAL

1. Council of Europe digital citizenship education (DCE) domains and applied assessment criteria

Domain: Competency (Criterion)	Rationale for judgement and interpretation
Being Online: Access and Inclusion	Evaluated whether the initiative promoted equitable access to digital environments through affordability measures, accessibility features, multilingual or culturally adapted content or outreach to marginalized youth. Presence indicates that the initiative sought to reduce digital exclusion and enable equal participation.
Being Online: Learning & Creativity	Judged by the extent to which programmes encouraged active, creative or problem-solving use of digital tools such as content creation, innovation projects or collaborative learning activities. Presence indicates that participants were supported to construct knowledge and express ideas creatively online.
Being Online: Media & Information Literacy	Assessed based on inclusion of structured learning aimed at developing critical awareness of digital media including verifying information, recognizing bias, evaluating online sources and understanding algorithms or data flows. Presence indicates that participants were equipped to engage critically and responsibly with digital information.
Well-being Online: Ethics and Empathy	Determined by whether initiatives fostered respectful communication, empathy, kindness or shared online norms through workshops, peer support mechanisms or community guidelines. Presence demonstrates that the initiative promoted ethical behaviour and emotional intelligence in digital interaction.
Well-being Online: Health & well-being	Judged by reference to physical, mental or social well-being in digital contexts, including awareness of online harms, balance of screen time, resilience and safe use of health information or

Domain: Competency (Criterion)	Rationale for judgement and interpretation
	applications. Presence indicates that the initiative supported the safeguarding of well-being in digital life.
Well-being Online: e-Presence & Communications	Evaluated according to the guidance provided for managing digital identity, privacy settings and online communication style. Presence demonstrates that participants developed competence in maintaining a confident, safe and responsible digital presence.
Rights Online: Active Participation	Judged by whether initiatives enabled young people to engage in civic or community processes through digital means such as consultations, campaigns, hackathons or youth policy dialogues. Presence indicates that the initiative fostered empowerment and meaningful participation in digital public life.
Rights Online: Rights & Responsibilities	Assessed by the inclusion of education on digital rights such as freedom of expression, access and participation alongside responsibilities including respect, non-discrimination and reporting misconduct. Presence demonstrates that participants developed a balanced understanding of rights and duties in digital citizenship.
Rights Online: Privacy & Security	Evaluated for evidence of instruction or guidance on protecting personal data, managing consent, maintaining password security and adhering to data protection standards such as GDPR. Presence indicates that the initiative strengthened participants' capacity to safeguard privacy and maintain digital security.
Rights Online: Consumer Awareness	Judged by the presence of education in digital consumption – including understanding advertising, data monetization, in-app purchases and online commercial practices. Presence demonstrates that participants developed awareness of consumer rights and critical understanding of digital market environments.

2. Coding rules for assessing linkages between policy frameworks and youth health and well-being

Linkage Level	Definition	Examples of qualifying language
Explicit linkage	The policy/ framework clearly names health, well-being, mental health, safety, protection or psychosocial outcomes as aims, competencies or guiding principles.	“promoting learners’ mental health”, “ensuring children’s safety online”, “supporting emotional well-being”, “resilience and self-care”
Implied / Indirect linkage	The policy/ framework indirectly supports well-being through inclusion, empathy, resilience, digital safety, participation or empowerment, but does not use health-related terminology.	“inclusive access”, “safe and responsible use”, “resilience and empowerment”
Minimal or No linkage	No explicit or implicit reference to health, well-being, safety or related psychosocial elements; focuses on technical or civic competencies only.	“digital skills”, “media literacy”, “data competence”

3. Coverage of digital citizenship education (DCE) competencies across 28 European initiatives

	Initiative/ Intervention	Notes / References (links, citations, additional context)	Domain 1 - Being Online			Domain 2 - Well-being Online			Domain 3 - Rights Online			
			Access & Inclusion	Learning & Creativity	Media & Information Literacy	Ethics and Empathy	Health & Well-being	e-Presence & Communications	Active Participation	Rights & Responsibilities	Privacy & Security	Consumer Awareness
1	Short classroom training on cybersecurity for pupils	Ondrušková, D., & Pospíšil, R. (2023). The good practices for implementation of cyber security education for school children. Contemporary Educational Technology, 15(3), ep435.		✓	✓	✓		✓		✓	✓	
2	Project-based digital skills education for higher education students	Miliou, O., Angeli, C. Design principles for Internet skills education: results from a design-based research study in higher education. SN Soc Sci 2, 169 (2022).	✓	✓	✓	✓		✓	✓	✓	✓	
3	NERDVET – enhancing critical thinking and media literacy via self-nudging	Sartori R, Tommasi F, Ceschi A, Falser M, Genero S and Belotto S (2022) Enhancing critical thinking skills and media literacy in initial vocational education and training via self-nudging: The contribution of NERDVET project. Front. Psychol. 13:935673.	✓	✓	✓	✓		✓	✓	✓	✓	✓

	Initiative/ Intervention	Notes / References (links, citations, additional context)	Domain 1 - Being Online			Domain 2 - Well-being Online			Domain 3 - Rights Online			
			Access & Inclusion	Learning & Creativity	Media & Information Literacy	Ethics and Empathy	Health & Well-being	e-Presence & Communications	Active Participation	Rights & Responsibilities	Privacy & Security	Consumer Awareness
4	Media education & educational commons for youth civic engagement (Italian case study of Horizon 2020 SMOOTH)	Cappello G and Siino M (2023) Media education and educational commons for youth civic engagement. A case study from the Horizon 2020 project SMOOTH. Front. Sociol. 7:1108229.	✓	✓	✓	✓		✓	✓	✓	✓	✓
5	CONNECT-Science (Open Schooling with AI & CARE–KNOW–DO pedagogy)	Okada, A., Sherborne, T., Panselinas, G. et al. Fostering Transversal Skills Through Open Schooling Supported by the CARE-KNOW-DO Pedagogical Model and the UNESCO AI Competencies Framework. Int J Artif Intell Educ (2025).	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	FEJYLEN (2020–21) – Remote Service-Learning program	Hervás-Torres, M., Bellido-González, M., & Soto-Solier, P.M. (2024). Digital competences of university students after face-to-face and remote teaching: Video-animations digital create content. Heliyon, 10, e32589.	✓	✓	✓	✓		✓	✓	✓	✓	

	Initiative/ Intervention	Notes / References (links, citations, additional context)	Domain 1 - Being Online			Domain 2 - Well-being Online			Domain 3 - Rights Online			
			Access & Inclusion	Learning & Creativity	Media & Information Literacy	Ethics and Empathy	Health & Well-being	e-Presence & Communications	Active Participation	Rights & Responsibilities	Privacy & Security	Consumer Awareness
7	TalkTech – Technology, Digital Media & Culture Across Continents	Whewell, E., Caldwell, H., Frydenberg, M., & Andone, D. (2022). Changemakers as digital makers: Connecting and co-creating. Education and Information Technologies, 27, 6691–6713.	✓	✓	✓	✓		✓	✓	✓	✓	✓
8	DLAB – Digital Learning Across Boundaries: Developing Changemakers	Whewell, E., Caldwell, H., Frydenberg, M., & Andone, D. (2022). Changemakers as digital makers: Connecting and co-creating. Education and Information Technologies, 27, 6691–6713.	✓	✓	✓	✓	✓	✓	✓	✓	✓	
9	Active cooperative methodology (Aronson's Jigsaw technique) to improve digital health literacy	De la Hoz, A., Cubero, J., Melo, L., Durán-Vinagre, M.A., & Sánchez, S. (2021). Analysis of Digital Literacy in Health through Active University Teaching. Int. J. Environ. Res. Public Health, 18(12), 6674.	✓	✓	✓	✓	✓	✓	✓	✓	✓	

	Initiative/ Intervention	Notes / References (links, citations, additional context)	Domain 1 - Being Online			Domain 2 - Well-being Online			Domain 3 - Rights Online			
			Access & Inclusion	Learning & Creativity	Media & Information Literacy	Ethics and Empathy	Health & Well-being	e-Presence & Communications	Active Participation	Rights & Responsibilities	Privacy & Security	Consumer Awareness
10	Personal, Social and Career Development (PSCD) Curriculum – Digital Citizenship Education in Malta	Fenech, R.M. & Zammit, L. (2025). Empowering responsible digital citizens: insights from Maltese Personal, Social and Career Development (PSCD) teachers on the impact of technology on students' well-being and curriculum relevance. Pastoral Care in Education.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	DiCi-Educa – Digital Citizenship & Rights for Institutionalised Youths	Brites, M.J. & Castro, T.S. (2022). Digital Rights, Institutionalised Youths and Contexts of Inequalities. Media and Communication, 10(4), 369–381.	✓	✓	✓	✓	✓	✓	✓	✓	✓	
12	Online Media Literacy Intervention on Performance and Appearance Enhancement Substances (PAES) Use	Galli, F., Palombi, T., Mallia, L., Chirico, A., Zandonai, T., Alivernini, F., De Maria, A., Zelli, A., & Lucidi, F. (2021). Promoting Media Literacy Online: An Intervention on Performance and Appearance Enhancement Substances with Sport High School Students. Int. J. Environ. Res. Public Health, 18(11), 5596.	✓	✓	✓	✓	✓	✓	✓	✓	✓	

	Initiative/ Intervention	Notes / References (links, citations, additional context)	Domain 1 - Being Online			Domain 2 - Well-being Online			Domain 3 - Rights Online			
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13	APPocalypse? – Web-based intervention to promote health app literacy	König, L. & Suhr, R. (2023). The Effectiveness of Publicly Available Web-Based Interventions in Promoting Health App Use, Digital Health Literacy and Media Literacy: Pre-Post Evaluation Study. JMIR, 25, e46336.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
14	Participatory Approaches—Research and Practice	Jarkiewicz, A., Krawczyk, A., & Szulewicz, E. (2025). The Development of the Participatory Approach to Digital Learning: Research Findings from Poland. Technology, Knowledge and Learning.	✓	✓	✓	✓		✓	✓	✓	✓	
15	Digital Literacy in the Medical Curriculum – Social Media & Gamification Course	Mesko, B., Győrffy, Z., & Kollár, J. (2015). Digital Literacy in the Medical Curriculum: A Course With Social Media Tools and Gamification. JMIR Medical Education, 1(2), e6.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
16	DiCE.Lang – Digital Citizenship Education and Foreign Language Learning	Bracci, L., Biagi, F., Simões, A.R., & Senos, S. (eds.) (2023). DiCE.Lang Handbook. UA Editora: Aveiro.	✓	✓	✓	✓		✓	✓	✓	✓	✓

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17	eMedia Handbook: Educational Robotics	eMedia – Media Literacy and Digital Citizenship for All Project (Erasmus+). Handbook on robotics for computational thinking.	✓	✓	✓	✓		✓	✓	✓	✓	
18	eMedia Handbook: Media Literacy	eMedia – Media Literacy and Digital Citizenship for All Project (Erasmus+). Focus on critical use of online media, fact-checking, misinformation.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19	eMedia Handbook: Online Expression	eMedia – Media Literacy and Digital Citizenship for All Project (Erasmus+). Focus on creative, wise, active expression online (blogs, radio, campaigns).	✓	✓	✓	✓		✓	✓	✓	✓	
20	CONNECT-Science: AI-enhanced Open Schooling with CARE–KNOW–DO Pedagogy	Okada, A., Sherborne, T., Panselinas, G., Kolionis, G. (2025). Fostering Transversal Skills Through Open Schooling Supported by the CARE-KNOW-DO Pedagogical Model and the UNESCO AI Competencies Framework. Int. J. of AI in Education.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
21	SELFIE tool for collective reflection on schools' digital capacity	Kampylis, P., & Sala, A. (2023). Improving the digital capacity of schools by using the SELFIE tool for collective reflection. Eur J Educ, 58:331–346.	✓	✓	✓	✓		✓	✓	✓	✓	✓

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22	ySKILLS – Youth Skills Project	ySKILLS (Youth Skills, Horizon 2020, 2020–2023). Synthesis Report & Deliverables (2023).	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
23	SELMA – Hacking Online Hate	SELMA (2019). Hacking Online Hate: Insights from the SELMA Project. European Schoolnet & partners.	✓	✓	✓	✓	✓	✓	✓	✓	✓	
24	MINDtheGaps – Media Literacy Towards Youth Social Inclusion	MINDtheGaps Consortium (Portugal, Bulgaria, Turkey, Norway). Youth Digital Citizenship Education Handbook (2020). Project ref. 2019-2-PT02-KA205-006226.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
25	The DataGame – Data Privacy for Adult Education Professionals	DataGame Consortium. (2024). The DataGame e-Book. Project No. 2023-1-AT01-KA220-ADU-000157050. Erasmus+ KA2.	✓	✓	✓	✓		✓	✓	✓	✓	
26	MINDSET – Preventing Gaming Disorder	MINDSET Consortium (2021–2023). Handbook for Youth & Youth Workers on Gaming Disorder (Erasmus+ KA2 Project).	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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27	My Story Map – Digital Storytelling for Early School Leavers	My Story Map: Analysis of Impact (2017-1-IT02-KA201-036735). Consortium: IIS Piaget-Diaz (Italy), die Berater (Austria), EUROGEO (Belgium), Pistes Solidaires (France/Spain), Asociación Mundus (Spain).	✓	✓	✓	✓	✓	✓	✓	✓	✓	
28	Tell Your Story (TYS) – Preventing Early School Leaving	TYS Consortium (2016–2018). IO7 Handbook: Preventing Early School Leaving through Digital Stories and Maps. Erasmus+ KA2 Strategic Partnership.	✓	✓	✓	✓	✓	✓	✓	✓	✓	

About DTH-Lab

DTH-Lab is a global consortium of partners working to drive implementation of The Lancet and Financial Times Commission on Governing Health Futures 2030's recommendations for value-based digital transformations for health co-created with young people. DTH-Lab operates through a distributive governance model, led by three core partners: Ashoka University (India), DTH-Lab (hosted by the University of Geneva, Switzerland) and PharmAccess (Nigeria).

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DIGITAL TRANSFORMATIONS FOR HEALTH LAB

GOVERNING HEALTH FUTURES 2030

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