

Digital Health Citizenship

Mapping Existing Tools for Digital, Health and Civic
Literacy

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EXECUTIVE SUMMARY

Digital Health Citizenship (DHC) integrates digital, health, and civic literacy to empower individuals, particularly young people, to navigate digital health ecosystems effectively. This framework promotes equitable access to health information, informed decision-making, and active participation in personal and public health outcomes, while addressing critical issues of digital literacy disparities, privacy, and inclusivity.

Digital Transformations for Health Lab (DTH-Lab) is exploring a comprehensive DHC toolkit to enhance youth health and well-being. This initiative uniquely positions young people as co-creators of digital health solutions while building essential knowledge and skills. Through a global landscape analysis, we evaluated 38 existing tools and resources addressing digital, health, and civic literacy, using criteria such as equity, trustworthiness, human-centric design, inclusivity, ethics, and capacity building.

Our analysis revealed significant gaps in current resources. Most tools lack multilingual support and alternative formats, excluding users with disabilities or limited digital access. The fragmented approach to literacy — where tools typically address only one aspect of DHC — reduces their effectiveness in fostering comprehensive digital health citizenship. Additionally, while existing resources successfully convey information, they often fail to develop practical skills across all three literacy domains. The heavy reliance on Internet connectivity further limits accessibility for individuals in low-resource settings.

The development of an effective DHC platform requires a nuanced understanding of the diverse cultural, social, and digital contexts young people navigate globally. Our findings indicate that successful implementation depends on extensive consultation with target audiences to ensure alignment with their needs and realities. Future DHC toolkits must prioritize visual appeal and user-friendliness while maintaining accessibility across regions. By involving young people in both design and governance processes, the platform can remain responsive to evolving needs and interests, ultimately fostering greater engagement and utility.

Through this targeted approach to developing comprehensive DHC tools/resources, we can better empower young people to become active participants in their health journey while ensuring no one is left behind in the digital health transformation.

1. INTRODUCTION

Digital transformations are rapidly redefining health and well-being. This concept positions digital technologies as an increasingly important determinant of health, especially for young people.¹ According to *The Lancet* and *Financial Times* Commission on Governing health futures 2030: growing up in a digital world, young people should be actively co-designing digital health solutions and participatory decision-making processes.¹ Factoring in the unique perspectives of young people is essential to shaping equitable and responsive health systems while encouraging digitally immersed and digitally cautious citizens. Digital health governance must also be rooted in values like democracy and inclusion, ensuring that young people's rights are protected and their voices heard. This involves adapting health services and civic engagement to meet the specific needs of young people and recognizing the variations in digital literacy among different groups. This shows the importance of promoting digital health citizenship among young people.

1.1 Digital Health Citizenship

The Lancet and *Financial Times* commission highlighted the critical role of digital health citizenship (DHC) in ensuring that digital transformations lead to equitable health outcomes.¹ The report highlighted how integrating technology into healthcare can go beyond traditional pathways to universal health coverage (UHC), specifically by improving access for young people. This approach stresses that digital transformation is not merely about adopting technology but about creating inclusive systems that support health equity, data solidarity, digital rights, and youth empowerment. DHC has its origins in the broader discourse on health equity, civic technology and digital rights, evolving as a framework to address disparities in healthcare access and engagement.^{1,2} It emphasizes the responsible use of digital tools to empower individuals, particularly marginalized groups, ensuring they can actively participate in their health management. This evolution aligns with broader global discussions on how digital health can bridge gaps in UHC while safeguarding against deepening inequalities.

DHC involves an analysis of how people's involvement can influence the process of digitalizing health systems, the design and use of digital health technologies, and the impacts of digital transformations on health and well-being.² DHC is a concept that combines digital literacy, health literacy and civic literacy to inform and empower people in ways that promote their health and well-being. These three forms of literacy have been found to contribute uniquely to

a person's ability to participate in a thriving digital health ecosystem and engage in the broader digital ecosystem in health-promoting ways.²

Digital literacy is the competencies and knowledge necessary for an individual to use digital technologies effectively, including technical skills, information literacy and critical thinking.³ Health literacy refers to the ability to obtain processes, understand and use health information to make appropriate and informed decisions. These include comprehending health information, navigation in health systems and decision-making.⁴ Civic literacy relates to knowledge and skills in participating in civic life and a clear internal understanding of how civic processes work, which includes rights and responsibilities, civic engagement and critical awareness.⁵ Through active and informed participation in civic life, access to adequate health information and digital technologies, people can help improve both individual and public health.

These are the three forms of literacy and skill involved in DHC.

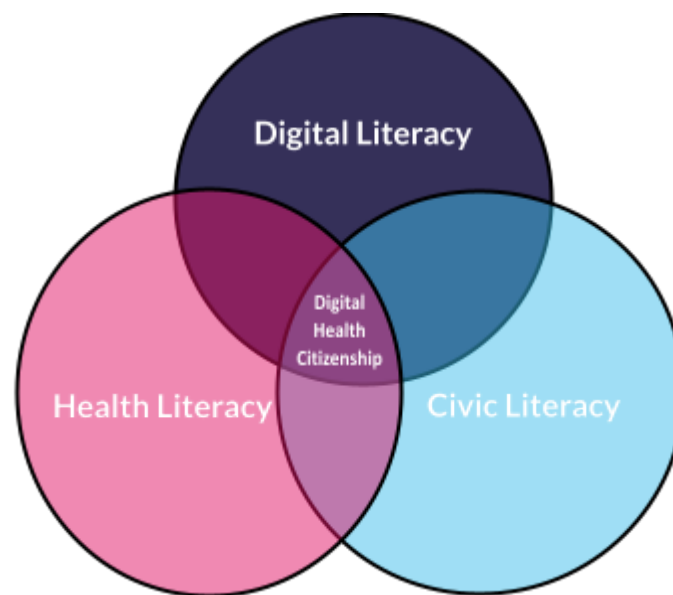


Figure 1. Three forms of literacy and skills required for promoting digital health citizenship¹

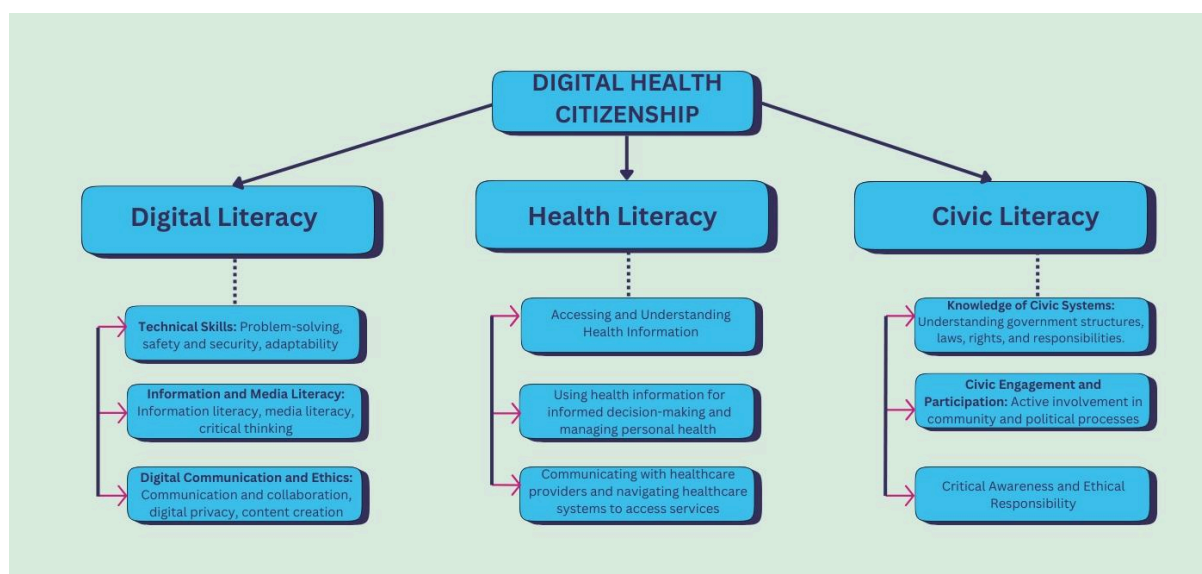


Figure 2: Components of Digital, health and civic literacy⁶⁻⁹

1.2 Digital Health Citizenship for Young People

Youth-centred digital health citizenship is an integrated approach to meet young people's needs, perspectives and experiences in navigating the digital world. The strategy has focused on the critical aspects of digital literacy, civic engagement and responsible online behaviour. Many young people face social, economic and legal challenges, preventing them from fully benefiting from digital health solutions. These include inadequate ICT infrastructure, insufficient data governance and protection and the unavailability of digital health tools/resources responsive to their needs. Secondly, there is usually a lack of capacity among young people to adapt and to make effective use of digital technologies. Combined, these factors can restrict youth agency, exacerbate inequalities and foster distrust in policymakers and healthcare systems.¹⁰

Digital technology for health promotion can foster a sense of community, altruism, and advocacy for change among young people, while also highlighting their responsibility for personal well-being and contributing to the health and well-being of others



There are several health-related challenges arising from the use of technologies, including aspects such as online bullying, negative information, mental health difficulties, privacy and lack of a community.¹¹ Online bullying quite often leads to severe emotional and psychological trauma, causing the victim to feel anxious and depressed and even affecting one's self-esteem.¹² Misinformation, mainly misinformation that addresses health issues, may lead young people to take a mistaken course, leading them to dangerous behaviours or causing them to dismiss effective health practices.¹³ The pressure of maintaining an online presence and constant comparisons, which is sometimes facilitated by social media, only heightens the problem of mental health. Because social media facilitates an enormous online information base, digital literacy in this space is a good practice for youth. However, most young people lag in developing skills for critically assessing sources and protecting personal information.

DHC helps young people develop and manage their digital health resources, and meaningful participation in co-creation is necessary.¹⁴ Because young leaders are closer to the experiences and challenges of peers, they can advocate effectively for pertinent and accessible digital health solutions. The active participation of young leaders ensures digital health initiatives resonate with young peoples' unique needs, promoting better adoption and utilization. They can further act as role models to peers in charge of their digital health journeys. This kind of empowerment gives them a sense of ownership and responsibility, motivating them to engage in proactive and informed health behaviours. Several tools/resources have been designed to

build knowledge and capacity and improve the skills of young people toward taking responsibility for their health and well-being.

This, therefore, calls for essential solutions from digital platforms and tools/resources to help address the health needs of youth. Anti-bullying tools and platforms provide secure areas for reporting and seeking help that can empower young people in the fight against harassment for themselves and other peers. Digital literacy tools/resources, such as educational programmes and fact-checking apps, can equip youth with the skills needed to distinguish between credible information and mischievous information, thus building a generation of informed and critical thinkers.¹⁵ Accessible resources on mental health platforms help individuals manage stress, anxiety and depression by directly suggesting means of support and coping.¹⁶ Through privacy tools, youth are informed that their personal information is important and can learn how to use privacy settings and online safety to ensure data security.

Moreover, civic engagement and advocacy platforms provide a voice for young people to make a difference in several community initiatives and bring about social change. These platforms/tools, such as social media and online collaboration tools/resources, support young people in effectively organizing campaigns, creating awareness, and leading initiatives to ensure digital health and safety within the community around them. These tools/resources further empower youth to take active roles in shaping better health outcomes and a safer, more informed digital environment. These are critical tools/resources for empowering young people to better manage their digital health needs, with a view towards society having a generation characterized by know-how, resilience and pro-activeness in managing challenges ushered in by the digital age.

Platforms such as Teen Health & Wellness¹⁷ and MindShift¹⁸ make clear health information and mental health support tools/resources available in an easy-to-understand fashion, enabling youth to make informed health decisions. There are also online forums and communities such as ReachOut¹⁹ and The Mix,²⁰ which foster peer support and civic engagement among youth users by encouraging them to participate actively in health advocacy and community-building-type initiatives. There are also initiatives led by institutions such as DoSomething.org and Youth Service America, which mobilize young people in digital actions for social good and health. Some of these tools/resources are led, created or managed by young people, and this includes the Mental Health Literacy curriculum²¹ which has a youth advisory board that helps advise on the management of the platform. These different tools/resources and initiatives engender a comprehensive increase in well-rounded digital health citizens.

Advancing digital health citizenship in young people advances their technological skills and fosters profound engagement with health issues. This focus on DHC provides a way to develop enhanced leadership in youth and strengthens democracies by encouraging active participation and informed decision-making.

The greater the emphasis given to DHC, the greater the likelihood that we can nurture a generation of tech-inclined and socially committed individuals to reshape a better future in health and governance.

1.3 Digital Transformation for Health Lab (DTH-Lab) Objective

To build young people's capacities as digital health citizens, Digital Transformations for Health Lab (DTH-Lab) is exploring the feasibility of creating a comprehensive digital health citizenship toolkit for youth that integrates and enhances digital, health and civic literacy. Such a toolkit would serve to support individuals in navigating and utilizing digital health ecosystems as well as playing an active role in, influencing, co-creating and leading the design and governance of future ecosystems. To inform this work and avoid any duplication, DTH-Lab aims to understand what tools and resources already exist for advancing digital health citizenship and the gaps in which DTH-Lab could add value.

1.3.1 Research Project Objectives

1. Identify and evaluate global, regional and national tools/resources that promote digital health citizenship, focusing on educational and capacity-building resources and current initiatives.
2. Conduct a thorough assessment of the strengths and weaknesses of these tools/resources to determine their effectiveness and areas for improvement.
3. Identify gaps in the existing tools and make recommendations for DTH-Lab's future work.

2. METHODOLOGY

2.1 Research Approach

This research was conducted in two stages: a landscape analysis, followed by an assessment of existing tools and resources for strengths and weaknesses. The research approach integrates literature review, walkthrough method and comparative analysis to evaluate tools/resources comprehensively and assess their strengths and weaknesses.

2.1.1 Landscape Analysis

This preliminary stage consisted of a literature review to identify existing tools and resources for DHC and a walkthrough assessment of all tools. A walkthrough practical testing and evaluation method is used for evaluating digital applications, resources and platforms by experiencing the tool from a user's perspective.²² The walkthrough process involved a step-by-step approach: starting from registering on the platform, exploring its features, and using its tools. This method evaluated the platform's ease of use, functionality, required effort, and its effectiveness in addressing its intended purpose.²² The literature review included published articles, conference papers, reports, and grey literature related to concepts concerning digital health citizenship that met the criteria outlined below.

This stage was used to identify and assess tools/resources and initiatives according to their ability to cover digital literacy, health literacy and civic engagement. The tools/resources were evaluated based on their ability to empower users to make informed digital and health decisions and participate in civic activities that holistically promote their well-being. Several tools were evaluated and 38 were identified to promote one of the forms of literacy being evaluated. These tools/resources are displayed in table format (see Tables 1, 2 and 3) and categorized based on their name, organization, reach, target audience, focus, and features.

Search Terms

With an integrated approach, research tools such as Google Scholar and ResearchGate were used for the literature review. Boolean operators, such as “(digital health citizenship tools AND young people) OR (digital health tools AND young people) OR (digital citizenship tools AND young people)”, were used.

AI tools, social media platforms and Google searches were also utilized to obtain more information concerning digital health citizenship tools for this study. First, AI-based tools, such as ChatGPT and SciSpace, were used, as these are very advanced in information retrieval and pattern identification. Running keywords such as "digital citizenship tools," "online citizenship," and "digital health citizenship platforms" through these AI tools produced full lists of data and key resources. Several prompts were also given to generate these tools, including <What is an example of tools for youth in digital health citizenship>, < Young people focused on tools with digital + health + civic criteria>, <Products designed for young people to support them in effectively using digital health tools, making sense of online health information>, and <Initiatives that encourage digital citizenship or digital health citizenship.>

In addition to the AI tools used, social media contributed significantly to the research. The platforms targeted were Twitter and LinkedIn, which are dynamic and full of current discussions on digital citizenship. Hashtag-targeted searching using #digitalcitizenship, #digitalhealthcitizenship, #health literacy, #digitalliteracy and #civilliteracy, following influential accounts, and considering leaders who contribute many meaningful posts and discussions. Further research was conducted through Google to prevent a tightened circle of sources. Certain search queries using keywords, such as "best digital citizenship tools 2024," "digital citizenship education platforms," and "digital health citizenship education platforms," were used.

Inclusion and Exclusion Criteria

Inclusion criteria

1. Digital health focus: Tools/resources primarily discussing or exploring or designed for digital health citizenship or related concepts.
2. Population: Tools/resources involving young people (children and youth) engaging in digital literacy, health literacy and civic literacy.
3. Research type: Tools/resources walkthrough, literature review, social media walkthrough and report review.

Exclusion criteria

1. Irrelevant focus: Tools/resources not directly addressing digital health citizenship or related concepts.
2. Inaccessible sources: Tools/resources that are not accessible or available for review.

2.1.2 Assessment of Strengths

The second stage assessed the strengths and weaknesses of each tool through a more targeted walkthrough and use of the tools/resources, based on set criteria. The tools/resources were assessed based on the range of features they have in addressing digital, health and civic literacy. The assessments were in two categories, based on the research objective and based on a set of values and features prioritized by youth during a series of global consultations conducted by DTH-Lab on digital first health systems (DFHS).²³ Using the research objective, the tools were assessed based on their ability to address digital literacy, health literacy, civic literacy, and overall ability to improve knowledge and skills. The tool was also evaluated using the values identified by young people in the DFHS report: ethical, inclusive, trustworthy, equitable, humanistic, everyone connected, quality personalized services and user-friendly.

This approach aimed to provide a comprehensive understanding of the level of influence and user experiences associated with these tools/resources. Comparative analysis was used by tabulating all the identified tools and using a check mark to identify tools/resources that met the set criteria (see Table 4). The pass mark was set at 9/13 (70%) and tools with at least 9 out of 13 of the criteria were further discussed in the result.

2.2 Limitations

One of the primary limitations of this study is the subjectivity inherent in the assessment process. The evaluation relied on predetermined criteria and the researchers' interpretations, without incorporating direct feedback from users or stakeholders. This approach may have introduced biases, as it reflects a limited perspective on the usability, effectiveness, and relevance of DHC tools.

To address these limitations, future research should integrate more participatory methods, such as focus group discussions, user interviews, or surveys. These methods would allow for a broader range of perspectives, providing richer and more diverse insights. Such an approach would help validate the findings, ensuring they are more representative of the actual user experience and better aligned with the needs of diverse populations.

3. FINDINGS AND ANALYSIS

3.1 Landscape Analysis

A landscape analysis was performed to assess the effects of existing tools, resources and initiatives at the global, regional and national levels on digital, health and/or civic literacy. It focused on identifying resources that are specifically designed for young people, including educational platforms, training programmes and community-based initiatives. The findings from this study will inform the potential design and development of a digital health citizenship toolkit as well as other DTH-Lab activities to advance DHC. The findings will inform policymakers, educators and health professionals about effective strategies for promoting digital health citizenship among youth. Finally, this study contributes to the existing body of knowledge and supports the development of new tools/resources and initiatives.

3.1.1 Digital, Health and Civic Literacy Tools/Resources

Through the landscape analysis, 38 tools or resources to support young people's digital, health and/or civic literacy and skills were identified (see Table 1 and Figure 2). These included several educational platforms, such as online courses, webinars and MOOCs tailored to enhance digital health literacy and promote citizenship among young people. Training programmes offered by universities, non-governmental organizations (NGOs) and health organizations provide structured learning opportunities to improve skills in digital health. Several tools were identified to enhance digital, health, and civic literacy through various features. These features aim to empower users by improving their knowledge, skills, and engagement in these areas. The Digital Citizenship+ Resource Platform (DCPR),²⁴ curated by Youth and Media at the Berkman Klein Center for Internet and Society at Harvard University, offers a diverse collection of learning experiences and visualizations across various aspects of youth's digitally connected lives, including privacy, security and civic engagement. Kolibri is another platform identified that offers a comprehensive set of literacy resources for digital, health and civic literacy among young people in low-resource settings.

These two platforms have been designed to fit into different cultural contexts, age groups and have several features. Some of the features of these tools include an offline library that allows young people in low-resource settings to have access to DHC resources. Other relevant features found in the 38 identified tools include having different formats for literacy materials such as audio, videos and text based materials.

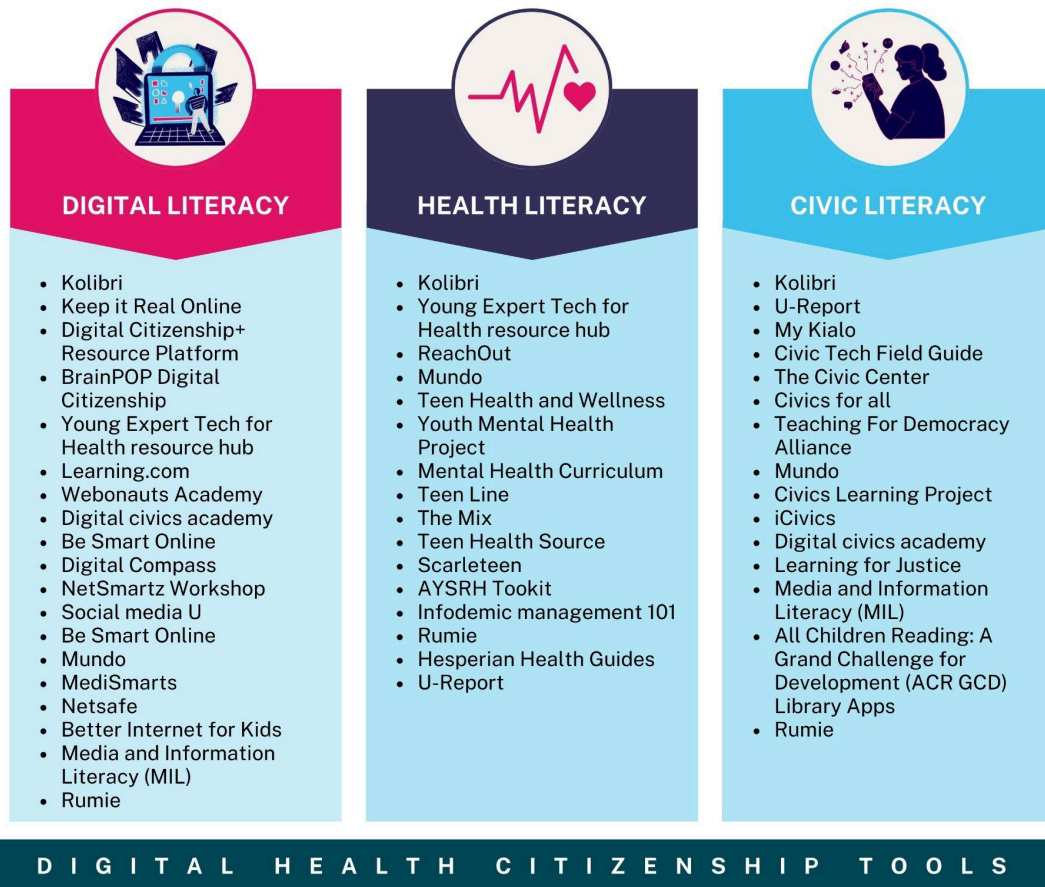


Figure 3: Tools/resources identified to promote Digital, Health and Civic Literacy

Table 1 Digital Health Citizenship Tools/Resources

SN	Tool	Host	Focus	About	Country/ region/ global	Age	Features	Topics
1.	Kolibri ²⁵	Learning Equality	Digital, health and civic literacy	Kolibri is an open-source digital learning platform designed to provide offline access to educational content in low-resource settings. It allows users to download, share, and interact with a wide range of educational materials without requiring constant Internet connectivity. Kolibri is particularly beneficial for schools, communities, and individuals in regions with limited or no Internet access, offering a solution for equitable learning. It supports over 70 languages	Global	-	Offline library - audio, video, practice quiz, articles, interactive media	Core academic subjects, vocational and life skills, health and well-being, STEM education, digital literacy, civic and social education
2.	Digital Citizenship+ Resource Platform ²⁴	Berkman Klein Center for Internet and Society	Digital Literacy	The Digital Citizenship+ (Plus) Resource Platform (DCPR) is an evolving collection of learning experiences, visualizations and other educational resources (collectively referred to as “tools”) designed and maintained by the Youth and Media team. You can use the DCRP to learn about different areas of youth’s digitally connected life and it is accessible in 37 languages	Global	11 - 18	Blog/articles, videos, external resources, infographic, curriculum, guide, research paper, podcast, playlist, learning experience	‘Artificial Intelligence’, ‘Civic and Political Engagement’, ‘Computational Thinking’, ‘Content Production’, ‘Context’, ‘Data’, ‘Digital Access’, ‘Digital Economy’, ‘Digital (Literacy)’, ‘Identity Exploration and Formation’, ‘Information Quality’, ‘Law’, ‘Media (Literacy)’, ‘Positive/Respectful Behavior’, ‘Privacy and Reputation’, ‘Safety and Well-being’ and ‘Security’
3.	Young Expert Tech for Health resource hub ²⁶	Transform Health	Digital health literacy	The resource hubs allow access to several webinar series, workshop materials and documents that help one get informed about digital health	Global	18 - 35	Webinar/blog, policy brief, situation analysis	Digital health innovation, health governance, universal health coverage

SN	Tool	Host	Focus	About	Country/ region/ global	Age	Features	Topics
4.	BrainPOP Digital Citizenship ²⁷	BrainPOP	Digital literacy	Offers animated videos and interactive activities to teach children about Internet safety, cyberbullying, digital etiquette and online privacy. These cover several areas of digital citizenship. This is available to every country but it is not free. It costs between \$129 – 159 annually.	Global	8 - 14	Games, movies, articles, quizzes	'Artificial Intelligence', 'Computer Programming', 'Conflict Resolution', 'Copyright', 'Cyberbullying', 'Digital Etiquette', 'Distance Learning', 'Email and IM', 'Grace Hopper', 'Hackers', 'Information Privacy', 'Internet', 'Internet Search', 'Malware', 'Media Literacy', 'Online Safety', 'Online Sources', 'Peer Pressure', 'Plagiarism', 'Social Media'
5.	ReachOut ¹⁹	ReachOut Australia	Health literacy	ReachOut is a tool that helps young people find articles and other tools and apps (e.g. Headspace, Happify etc.) to promote their health. It also allows peer chat and an online community that helps interact with other people. It can be managed as a parent, school or young person account.	Australia	14 - 25	Resources hub, peer-to-peer support, moderated online communities, tips, stories, news and health tool finder	'Bullying', 'Challenges and coping', 'Identity', 'Mental health issues', 'Mental wellbeing', 'Relationships and Study', 'Work & money'
6.	Teen Health and Wellness ¹⁷	Rosen Publishing Group Inc.	Health Literacy	Teen Health & Wellness provides middle and high school students with non-judgmental, straightforward, curricular and self-help support, aligned to state, national and provincial standards. This is not a free tool and costs \$595 - \$1195. It is also available in over 100 languages.	United States	13 - 19	Resource hub and Tool, hotline, videos, photos, drawings, articles, personal stories, budget calculator	'Body Basics', 'Developmental Disabilities and Disorders', 'Diseases, Infections and Conditions', 'Diversity', 'Drugs and Alcohol', 'Eating Disorders', 'Family Life', 'Friendship and Dating', 'Green Living', 'Grief and Loss', 'Mind, Mood and Emotions', 'Nutrition', 'Fitness and Appearance', 'Safety', 'Sexuality and Sexual Health', 'Skills for School', 'Work and Life'

SN	Tool	Host	Focus	About	Country/ region/ global	Age	Features	Topics
7.	Youth Mental Health Project ²⁸	HeyPeers	Health literacy	The Youth Mental Health Project is a non-profit organization whose mission is to educate, empower and support families and communities to better understand and care for the mental health of our youth. This is available in approximately 7 languages	USA/Global	< 25	Resource hub and helpline/chat, zoom meeting, chat room, support group, articles	'Pregnancy', 'Substance abuse', 'Depression', 'Sleep', 'Addiction', 'Paralysis', 'Anxiety', 'Chronic Illness', 'Grief and loss', 'Bipolar', 'Fraud', 'Brain injury', 'Eating disorder', 'Parenting', 'Veteran'
8.	Mental Health Curriculum ²¹	Mental health literacy	Health Literacy	Provides educational articles on mental health-related areas and has tools and resources that help one. This tool has a youth advisory council that guides on the management of the tools.	Canada/Global	15 - 25	Resource hub, Classroom/Curricular, videos, articles	'What is Mental Health', 'Mental Disorders', 'The Big 5 for Mental Health', 'Brain Injury', 'Suicide', 'Teen Behaviour', 'The Teen Brain', 'Understanding Self-Injury/Self-Harm', 'Understanding Stigma', 'Understanding Stress', 'Understanding Substance Use', 'Understanding Health', 'Information and Research'
9.	iCivic ²⁹	iCivic	Civic literacy	It is a platform that helps teach young people about civic literacy and engagement in America.	USA	-	Resource hub, games, blog, news	Democracy and civic Engagement
10.	Teen Line ³⁰	DIDI Hirsch	Health citizenship	<i>Teen Line</i> provides personal teen-to-teen education and support before problems become a crisis, using a national hotline, current technologies and community outreach.	United States	13 - 29	Resource hub, helpline (call and text)	Relationships, anxiety, depression, suicidal feelings, loneliness, self-injury, dating violence, sex and sexuality
11.	Learning.com ³¹	Learning.com	Digital literacy	Provides a comprehensive digital literacy curriculum for K-12 students, covering topics such as digital citizenship, online safety, research skills and digital communication. This includes the EasyTech and EasyCode features that equip children with technology and coding skills.	Florida, Michigan, Texas	5 - 18	Learning materials, videos, curriculum, game board, quiz, assignments	Keyboarding, online safety, applied productivity tools, computational thinking, coding and more

SN	Tool	Host	Focus	About	Country/ region/ global	Age	Features	Topics
12.	The Mix ²⁰	The Mix	Health Literacy	Provides essential support and resources for young people in the UK. This is in the form of articles.	United Kingdom	< 25	Resource hub/Helpline/discussion Board	Money, relationships, mental health, homelessness, drugs, sexual problems etc.
13.	Teen Health Source ³²	Planned Parenthood Toronto	Health Literacy	This tool is a sexual health tool with a blog, self-assessment and educational information on teenage sexual health. Also provides a list of sexual health clinics and services in the Greater Toronto Area.	Canada	13 - 29	Blog/articles, helpline, link with health services and centres	Mental health, counselling, STI testing, resources, birth control, pregnancy tests, free condoms, IUD insertion, abortion, STI treatment, etc.
14.	Scarleteen ³³	Scarleteen	Health literacy	It is dedicated to providing truly comprehensive and highly inclusive sex and relationships education, information and support that centres young people. It contains books, articles and publications.	United States	>13	Resource hub, message board, live chat, helpline, outside resource referral, teen outreach	Sexual health and relationships, gender, identity, health, expectation, communication, consent.
15.	U-Report ³⁴	UNICEF	Civic literacy	This platform provides young people with tools and resources to learn about and advocate for digital rights and online safety, while also engaging them in discussions about the impact of technology on their lives.	Global	< 30	Stories, chatbot, polls, opinions, news, Text/SMS line	Digital rights and online safety, climate, mental health, vaccination, impact of technology, advocacy
16.	Webonauts Academy ³⁵	PBS Kids Wiki	Digital literacy	This website helps kids explore digital citizenship and safety through engaging games and activities. With currently over 1,733 articles and 14,431 files, the wiki is a collaborative database containing PBS Kids content and its shows. This focuses their attention on shows that are designed for young people.	Global	8 - 10	Games, anime, movies/video, wiki, forum, TV, <i>Fan Central</i>	Entertainment for young children and digital learning resources

SN	Tool	Host	Focus	About	Country/ region/ global	Age	Features	Topics
17.	Digital civics academy ³⁶	Half the story	Digital and civics literacy	Digital Civics Academy is a pioneering programme co-designed by youth, for youth. It is a 1-week course, complemented by hands-on advocacy and organizational opportunities designed to equip the next generation of activists with the skills to influence policies shaping the digital future.	United States	16 - 21	Curriculum	Activism, storytelling and leadership techniques
18.	Be Smart Online ³⁷	Foundation for Social Welfare Service	Digital literacy	Designed to educate young people on safe and responsible Internet use, focusing on relevant topics. It has a youth panel that helps with decision-making.	Global	4 - 19	Article/blogs, helpline, video	Privacy settings, recognizing online risks, ethical online behaviour etc.
19.	Learning for Justice ³⁸	Southern Poverty Law Center	Civic Literacy	Learning for Justice is an initiative that provides free resources to educators to help them teach about social justice, civil rights, and diversity. Their materials include lesson plans, professional development tools, and articles aimed at promoting inclusive and equitable education practices.	Global	-	Poster, Resource/Article s, Podcast, Posters	'Race & Ethnicity', 'Religion', 'Ability', 'Class', 'Immigration', 'Gender & Sexual Identity', 'Bullying & Bias', 'Rights & Activism'
20.	NetSmartz Workshop ³⁹	National Center for Missing & Exploited Children (NCMEC)	Digital literacy	Developed by the National Center for Missing & Exploited Children (NCMEC), NetSmartz Workshop offers resources and games to teach children and teens about digital safety.	Global/USA	5 - 18	Blog, Videos, games, presentations, classroom activities, training	Internet safety, cyberbullying prevention, social media literacy etc.
21.	Social media U ⁴⁰	Half the story	Digital literacy	It is a curriculum developed for middle and high school students	USA/UK	11 - 19	Curriculum, videos, quiz, workshop, coaching	Digital well-being
22.	Be Smart Online ⁴¹	Childnet	Digital literacy	A leaflet version of our SMART rules for young people containing useful safety websites and a quiz to help keep children safe when using the Internet and mobile devices.	Global/UK	3 - 18	Leaflet, articles	Grooming, online bullying, reporting, online reliability, gaming, live streaming, screen time

SN	Tool	Host	Focus	About	Country/ region/ global	Age	Features	Topics
23.	Mundo ⁴²	Digcitinstitute	Digital literacy	Mundo is an AI classroom assistant that provides educational assistance, answers questions and offers information on a wide range of topics, which is available in several languages. It uses AI ChatGPT-3	Global	>13	Chatbot	Digital literacy
24.	Adolescent & Youth Sexual & Reproductive Health Toolkit ⁴³	TCI University (TCI-U)	Health literacy	A platform offering high-impact urban family planning and Adolescent & Youth Sexual & Reproductive Health (AYSRH) interventions for learning, adapting, disseminating and coaching. As a key mechanism to build capacity and strengthen health systems, TCI-U supports local governments in scaling up these interventions with in-person and virtual coaching, online toolkits and a vibrant community of practice.	East Africa, Francophone, West Africa, India, Nigeria, Pakistan, Philippines	-	Resource hub, coaching, toolkit	Urban and reproductive health, adolescent and youth sexual and reproductive health (SRH), gender equality, sustainability
25.	MediSmarts ⁴⁴	Canada Centre for Digital Literacy	Digital literacy	MediaSmarts is a platform dedicated to digital and media literacy. Their vision is for children, youth and trusted adults to possess the critical thinking skills needed to engage with media as active and informed digital citizens.	Canada	-	Articles, videos, games, tutorials	Education, public awareness and research and policy
26.	Netsafe ⁴⁵	New Zealand Government	Digital literacy	Netsafe is New Zealand's platform designed to educate young people about online safety.	New Zealand	< 30	Resource hub	Bullying, abuse, sextortion
27.	My Kialo ⁴⁶	Kialoedu	Civic literacy	It is a tool designed to teach students how to discuss issues with logic, self-reflection and civility. It is free and available in 48 languages.	Global	8 - 18	Resource hub, discussion forum, blog	Art, civics and society, history, geography, literature, philosophy, social-emotional learning, religious studies, pop culture and entertainment

SN	Tool	Host	Focus	About	Country/ region/ global	Age	Features	Topics
28.	Civic Tech Field Guide ⁴⁷	Civic Hall, Bloom, European Union	Digital and Civic literacy	Civic Tech Field Guide is a comprehensive directory of digital tools and projects that use technology to enhance civic engagement and democracy. Can be accessed in several languages	Global	-	Directory, map, calendar	Participatory budgeting, open data, digital activism, digital security and privacy, ethical tech and responsible tech, foundational layers, tech for public challenges, economic development
29.	Better Internet for Kids (BIK) ⁴⁸	European Union	Digital literacy	BIK is an EU initiative aimed at creating a safer online environment for children and young people. The Better Internet for Kids portal provides information, guidance and resources on better Internet issues from the joint Insafe-INHOPE network of Safer Internet Centres in Europe, and other key stakeholders. It contains resources in over 40 languages	European Union	< 24	Guide to apps, video, guide, textbook, presentation, blog, lesson plan, educational game, open activity	Advertising/commercialism, data privacy, gaming, technical settings, media literacy/education, online reputation, potentially harmful content, cyberbullying, love, relationships, sexuality (online)
30.	Keep it real online ⁴⁹	Department of Internal Affairs	Digital literacy	Keep It Real Online is a New Zealand Government campaign led by the Department of Internal Affairs to ensure the online safety of children) and youth. It has three parts: one for parents and caregivers, another for school-aged teens and a third for primary school children, each providing targeted resources and guidance to promote safe online practices.	New Zealand/ Global	<30	The eggplant series on social media (<i>YouTube</i>), posters, resources (articles), posters, helplines and support,	Depression or suicide crisis, help with porn, bullying, grooming or sextortion, gender and/or sexual identity, misinformation, bullying, online gaming, privacy and security
31.	Media and Information Literacy (MIL) ⁵⁰	UNESCO	Digital and civic literacy	The UNESCO Media and Information Literacy platforms provide a set of essential skills to address the challenges of the 21st century including the proliferation of mis- and disinformation and hate speech, the decline of trust in media and digital innovations notably Artificial Intelligence.	Global	-	MOOCs, Podcast, Curriculum, handbook and publications, videos, podcast	Media and information literacy

SN	Tool	Host	Focus	About	Country/ region/ global	Age	Features	Topics
32.	The Civic Center ⁵¹	Community Partners	Civic literacy	The Civics Center aims to address youth voter suppression by focusing on high school voter registration. They highlight the lack of infrastructure, comprehensive data, and youth visibility as key barriers. The organization advocates for pre-registration policies, civics education, and school-based initiatives to ensure young people understand the importance of voting and can easily register.	USA	18 - 24	ChatBot, LiveChat, blog, district level data, register to vote, training, merch, shareable graphics, workshop	Election
33.	Civics for all ⁵²	Seattle School Board	Civic literacy	The Civics for All initiative in Seattle is a comprehensive K-12 program aimed at integrating civics education throughout all grade levels. The programme emphasizes the importance of civics in shaping informed and engaged citizens, encouraging student participation in democratic processes. This initiative seeks to empower students with the knowledge and skills necessary to be active participants in their communities and the broader democratic society.	Seattle	5-18	Curriculum	'Civic Literacy', 'Pedagogical Advantages', 'Administrative Advantages', 'National Standards', 'National Civics Standards', 'Cognitive Underpinnings', 'Political Spectrum', 'Keys to Effective Civics Instruction', 'Voting', 'District-Wide School Voting in Mock Elections', etc.
34.	Teaching For Democracy Alliance ⁵³	Circle	Civic literacy	The alliance focuses on action civics and experiential learning, promoting hands-on civic education through real-world experiences and active participation in democratic processes. Their initiatives aim to empower students to engage in civic life, develop leadership skills, and understand their roles and responsibilities as citizens.	USA	-	Resources (articles) and curriculum	Election, voting and media literacy

SN	Tool	Host	Focus	About	Country/ region/ global	Age	Features	Topics
35.	Civics Learning Project ⁵⁴	Civics Learning Project	Civic literacy	The Civics Learning Project, previously known as the Classroom Law Project, is a non-profit in Oregon focused on preparing youth for active participation in democracy. They offer professional development for teachers and engaging programmes for students to develop essential civic knowledge and skills. Their mission involves collaboration with educators, lawyers, and civic leaders to foster informed and motivated democratic participants.	Oregon	-	Courthouse experience, election, mock trial, curriculum	Justice and legal issues, voting, election, politics, immigration, criminal law, civic education and civic participation
36.	Rumie ⁵⁵	The Rumie Initiative	Digital health and civic literacy	Rumie Learn is a digital learning platform that provides free, bite-sized learning resources, called Bytes," designed to teach essential life skills in an accessible and engaging way. With a mission to make learning easy and accessible, Rumie Learn is available offline and is particularly useful for underserved communities and learners in low-resource settings. Available in English, French, Spanish and Arabic.	Global	-	Video content, audio lessons, interactive quizzes, text-based bytes, downloadable content	Digital literacy, career development, mental health, and financial literacy

SN	Tool	Host	Focus	About	Country/ region/ global	Age	Features	Topics
37.	Hesperian Health Guides ⁵⁶	Hesperian	Health literacy	Hesperian Health Guides is a non-profit organization that creates and distributes accessible health information, particularly for underserved communities worldwide. Their resources are designed to empower individuals and communities to improve their health and well-being through self-care, prevention, and knowledge. Notable publications include <i>Where There Is No Doctor</i> , a widely used health guide. Hesperian provides free and low-cost digital educational materials in various languages, addressing a range of health topics such as maternal health, disability, environmental health, and disease prevention. Their resources are available both in print and online, in over 80 languages.	Global	-	Printed and digital health books, mobile apps, wiki, articles, purchase store, community training resources	Self-care, community health support, preventive care, culturally relevant materials, specific health topics, reproductive health, children's health, disability, health rights and advocacy, workers health, and environmental health
38.	All Children Reading: A Grand Challenge for Development (ACR GCD) Library Apps ⁵⁷	Agency for International Development (USAID), World Vision and the Australian Government	Civic literacy	Through its Library Apps, ACR GCD provides open-access digital reading materials that are interactive, engaging, and designed to help children learn to read. These apps include books, literacy games, and other educational content available in multiple languages. The initiative supports efforts to enhance early-grade reading skills, bridge the gap in access to quality education, and promote inclusive learning environments for children, especially those with disabilities or living in remote areas.	Global	-	'Brochure', 'Guide', 'Info Sheet', 'Infographic', 'Policy Paper', 'Presentation', 'Slides', 'Sector', 'Report', 'Tool Kit', 'Video', 'Webinar', 'Recording', 'Working Paper'	'Children With Disabilities', 'Foundations for Literacy', 'Family & Community', 'Engagement, Education Data', 'Education in Emergencies'

3.1.2 Current Initiatives for Fostering Digital Health Citizenship

Following a careful review, 39 programmes were identified that promote DHC (see Table 2). These initiatives focus on fostering digital, health, and civic literacy through tailored interventions and educational efforts aimed at empowering individuals to engage meaningfully with digital health systems. DTH-Lab's #MyHealthFutures network is dedicated to equipping young people with the skills, knowledge, and confidence needed to navigate digital health landscapes responsibly and effectively. Current initiatives by DTH-Lab to promote DHC include co-creating DHC tools and resources that empower youth to access and critically evaluate health information, engage in safe digital practices, and understand their health rights and responsibilities.⁵⁸ DTH-Lab also actively involves young people in the co-creation and research processes, advocates for the importance of DHC, and builds platforms that foster community among youth. These efforts collectively work toward a more inclusive and informed digital health environment for young people.

Internationally, organizations such as the World Health Organization (WHO), the United Nations Children's Fund (UNICEF) and the International Telecommunications Union (ITU) have launched initiatives to promote digital health literacy and access to resources globally.⁵⁹⁻⁶² These efforts are complemented by regional initiatives such as the Association of Southeast Asian Nations (ASEAN)'s digital health literacy projects, which enhance collaboration and integration of digital health strategies within specific geographical areas. ASEAN has taken steps to enhance digital literacy in the region through initiatives such as the Digital Economic Framework Agreement (2023), the Declaration on the Digital Transformation of Education Systems in ASEAN (2022), and the Framework for Developing Digital Readiness among ASEAN Citizens (2021). Recently, ASEAN launched the ASEAN Digital Literacy Programme (DLP) for 2022-2024, which includes activities like capacity building, creating a youth advisory group, raising awareness, conducting research, and developing an e-learning platform.⁶³ At the national level, numerous countries have implemented policies and programmes aimed at equipping their populations with the skills and knowledge necessary to effectively engage with digital health tools.

There are initiatives linked to DHC that specifically target youth, aiming to foster an informed and engaged population. The International Centre La Strada, a national non-governmental organization dedicated to protecting women and children from violence, collaborates extensively with governmental and civil society entities, justice system stakeholders, healthcare professionals and educational institutions. Their efforts focused on supporting survivors of human trafficking, domestic violence, sexual violence, online child sexual

exploitation and sexual abuse. Similarly, the [Digital Rights Foundation \(DRF\)](#) in Pakistan champions digital rights freedoms, especially for women, children and gender minorities. Since 2013, DRF has advocated for a free Internet with robust privacy policies to create safe online spaces globally. Additionally, organizations such as [the Centre for Safer Internet \(CSI\)](#) and the National Contact Centre for Child Safety on the Internet in Serbia work tirelessly to protect children and young people online, provide advisory support, forward abuse cases to authorities and implement preventive measures. Across Africa, the [African Society for Cyber Security Awareness \(ASCSA\)](#) conducts awareness campaigns focusing on digital citizenship, particularly for women and children. These initiatives promote comprehensive approaches to ensure online safety and empower communities in navigating digital health challenges.

Table 2. Current Initiatives Fostering Digital, Health or/and Civic Literacy

SN	Initiative	Host	About	Country/region/global	Focus
1.	<u>MyHealthFutures Youth Network</u> ⁶⁴	Digital Transformation for Health Lab	DTH-Lab collaborates with youth to enhance their capacity as digital health citizens. This includes identifying and producing necessary knowledge and tools for young people and health professionals to become confident digital citizens.	Global	Digital health and civic literacy
2.	<u>Citizens for digital health</u> ⁶⁵	Imagine Citizens Network	Citizens for Digital Health engages individuals in the ongoing digital transformation of healthcare. They interact with citizens to understand their priorities and empower them by enhancing their digital health literacy.	Canada	Digital health literacy
3.	K-12 Civic Literacy, Youth Lead, Kid Lead, North Carolina civic coalition, civics704, Learning Centre ⁶⁶	<u>GenerationNation</u>	GenerationNation in Charlotte-Mecklenburg focuses on developing civic leaders through various programmes. Key initiatives include K-12 Civic Literacy, Youth Lead, and Kid Lead, which engage students in understanding government and community issues. The North Carolina Civics Coalition and civics704 are other significant projects that promote civic education and participation. Their Learning Centre provides resources to support these efforts. GenerationNation aims to build students' civic knowledge, leadership skills, and active participation in civic life.	Charlotte-Mecklenburg	Advocacy, leadership, literacy

SN	Initiative	Host	About	Country/region/global	Focus
4.	Digital Citizenship Education initiative ⁶⁷	<u>Council of Europe</u>	The Council of Europe promotes digital citizenship through its Digital Citizenship Education initiative, which aims to empower citizens with the skills and knowledge needed to engage responsibly in the digital world. This includes fostering critical thinking, media literacy and the ethical use of digital technologies.	Europe	Democracy, human rights and the rule of law
5.	<u>Youth IGF Movement</u> ⁶⁸	IGF Internet Governance Forum	Supported by the Internet Governance Forum, this initiative engages young people in discussions and activities related to Internet governance, digital rights and responsibilities, encouraging them to become active participants in shaping the digital future.	Global	Internet governance, digital rights
6.	<u>Digital Education Action Plan</u> ⁶⁹	European Commission	This plan includes various actions to support digital literacy and skills development across EU member states, focusing on enhancing digital learning and teaching experiences and preparing citizens for the digital age.	Europe	Digital literacy, skills development
7.	<u>Digital Citizenship Institute</u> ⁷⁰	Digcitinstitute	This organization aims to promote positive and safe online experiences by providing training and resources to educators, parents and students to support digital citizenship education.	Global	Digital citizenship, online safety

SN	Initiative	Host	About	Country/region/global	Focus
8.	Lead ASAP ⁷¹	Youth Service America	YSA activates, funds, trains and recognizes youth and their adult champions, to activate youth, ages 5-25, through high-quality, youth-led service projects to “Lead ASAP” and acquire 21st Century Skills by solving real community problems. Includes campaigns and events, grants, resources and training. Opportunities for youth to volunteer.	United State	Awareness, service, advocacy, philanthropy
9.	Council for Internet Safety (UKCIS) ⁷²	UK Government	The UK Council for Internet Safety (UKCIS) is a collaborative forum through which the government, the tech community and the third sector work together to ensure the UK is the safest place in the world to be online.	UK	Internet and safety
10.	The Education Development Center (EDC) ⁷³	National Action Alliance for Suicide Prevention	The Education Development Center (EDC) is a global non-profit organization that has been advancing educational, health, and economic opportunities since 1958. EDC collaborates with partners worldwide to design, deliver, and evaluate programmes that address pressing challenges and promote sustainable change. Their work spans early childhood development, K-12 education, workforce development, health promotion, and more.	USA	Civic literacy

SN	Initiative	Host	About	Country/region/global	Focus
11.	Digital Literacy Programme ⁷⁴	ASEAN	An initiative to further combat misinformation and disinformation in the ASEAN region. With the support of a USD 1.5 million grant from Google.org, Google's philanthropic arm, the ASEAN Foundation will lead the implementation of the two-year programme, equipping 1,000+ trainers across ten ASEAN countries with media and information literacy skills they need to train 100,000+ beneficiaries in their community.	Southeast Asia	Internet and safety
12.	Smart Africa Alliance ⁷⁵	African Union, ITU, World Bank, ICANN, GSMA, African Development Bank, United Nations Economic Commission for Africa	Smart Africa is a bold and innovative commitment from African Heads of State and Government to accelerate sustainable socioeconomic development on the continent, ushering Africa into a knowledge economy through affordable access to broadband and usage of information and communications technologies.	Africa	Broadband access, ICT development
13.	Safer Internet Centre ⁷⁶	Red PaPaz	Red PaPaz is a civil society NGO that advocates for the protection of the rights of children and adolescents in Colombia and Latin America by enhancing the capabilities of key stakeholders, including parents, caregivers and educators.	Colombia	Child protection, Advocacy

SN	Initiative	Host	About	Country/region/global	Focus
14.	Albania National Youth Network ⁷⁷	<u>CRCA/ECPAT</u>	Child Rights Centre Albania/End Child Prostitution in Asian Tourism (CRCA/ECPAT Albania) works to promote the respect of child and youth rights, to protect them from violence and exploitation, to increase child and youth participation, through advocacy, policy and legislation improvement, capacity building, information and research and establishment of good models of services of child care and protection.	Albania	Child rights, violence prevention
15.	<u>Safer Internet Armenia</u> ⁷⁸	National Center of Educational Technologies, RA Ministry of Education, Science, Culture and Sports, Yerevan City Municipality and regional and municipal authorities.	Safer Internet Armenia (Safe.am), is the national project promoting and ensuring a better and safer use of the Internet and digital technologies among young people and adults. In the framework of Safer Internet Armenia training programmes, information campaigns, surveys, round tables and media events are organized and teaching materials are provided to educational institutions. The project is run by a consortium of partners coordinated by the Armenian Safer Internet Committee and STEM Society.	Armenia	Internet safety, digital literacy

SN	Initiative	Host	About	Country/region/global	Focus
16.	Safer Internet Centre ⁷⁹	International Forum of Solidarity – EMMAUS	IFS-EMMAUS has established and operates the first Safer Internet Centre in BiH for reporting, awareness raising and education of children and the general public of Bosnia and Herzegovina (BiH) on online child abuse and exploitation, consisting of four components: hotline, helpline and information centre and youth panel. The centre implements a comprehensive programme on the prevention of online child abuse and exploitation through digital technologies in cooperation with ministries, law enforcement agencies, institutions and organizations.	UK	Online child protection
17.	Safer Internet Centre ⁸⁰	SaferNet Brasil	SaferNet Brasil, an NGO in Brazil, established a multistakeholder approach to protecting human rights in the digital environment. It works as a Safer Internet Centre and coordinates actions on three fronts of online protection.	Brazil	Human rights, online safety
18.	Hike4thechildonline, Happy School Girl, Africa digital leaders ⁸¹	Child Online Africa (COA)	Child Online Africa (COA) is a prominent child-focused NGO operating in Ghana and across the African continent. Dedicated to championing policies and practices that safeguard child welfare, especially within the digital sphere, COA employs evidence-based advocacy and partnerships to drive its mission.	Ghana	Child welfare, digital safety

SN	Initiative	Host	About	Country/region/global	Focus
19.	Kosovo trust-building platform ⁸²	Centre for Advanced Studies - FIT	FIT promotes the safe and responsible use of the Internet by young people through a sustainable strategy of informing and raising awareness among parents, teachers and children themselves through various techniques, such as lectures, workshops, online courses, brochures, reports and different modules. Our job is to help users get the most out of technology and manage the risks they face.	Kosovo	Internet safety, awareness
20.	Reduce sexual abuse ⁸³	Fundación PAS	At Fundación PAS is dedicated to promoting a culture of prevention, attention and reporting of child sexual abuse, to safeguard the rights of girls, boys and adolescents, both in physical and digital environments. As administrators of the Te Protejo México reporting line, they provide a virtual platform to report sexual abuse material, sexual exploitation and other violations within digital environments to minors under 18 years old.	Mexico	Child protection, sexual abuse prevention
21.	Juventas ⁸⁴	International Drug Policy Consortium	Juventas is a non-governmental organization founded on 29 January 1996, in Podgorica, Montenegro. The vision of Juventas is a society of social justice in which all people feel safe, free and respected, participate in decision-making, have equal opportunities and enjoy all human rights.	Montenegro	Social justice, human rights

SN	Initiative	Host	About	Country/region/global	Focus
22.	Anti-Trafficking ⁸⁵	<u>The International Centre La Strada</u>	The International Centre La Strada is a national non-governmental organization dedicated to upholding the rights of women and children to live free from violence. They collaborated with governmental and civil society entities, justice system stakeholders, frontline law enforcement, healthcare and social service professionals, educational institutions, media outlets and academia to promote and protect the rights of women and children. Focuses on supporting survivors of human trafficking, domestic violence, sexual violence, online child sexual exploitation and sexual abuse.	Europe	Women and children's rights, violence prevention
23.	Cyber Harassment Helpline ⁸⁶	<u>Digital Rights Foundation (DRF)</u>	Digital Rights Foundation (DRF) is a feminist, not-for-profit organization based in Pakistan that has been working on digital rights freedoms since 2013. DRF envisions a place where all people, especially women, children and gender minorities, can exercise the right of expression without being threatened. DRF believes that a free Internet with access to information and impeccable privacy policies can create safe online spaces for not only women but the world at large.	Pakistan	Digital rights, online safety
24.	<u>Safer Internet Centre (SIC)</u> ⁸⁷	The Ministry of Digital Transformation and European Health and Digital Executive Agency	The Safer Internet Centre (SIC) Slovenia is a non-governmental and nonprofit association founded to improve the protection of children and young people primarily on the Internet and then in the real world. It has three components; an awareness centre, helpline and hotline.	Slovenia	Child protection, online Safety

SN	Initiative	Host	About	Country/region/global	Focus
25.	The National Contact Centre for Child Safety on the Internet ⁸⁸	Ministry of Information and Telecommunications Belgrade	The National Contact Centre for Child Safety on the Internet was formed within the Smart and Safe platform in 2017 in Belgrade and belongs to the Ministry of Information and Telecommunications. The centre's three core activities are advisory support, forwarding cases of child abuse to institutions and preventive measures.	Belgrade	Child safety, Internet safety
26.	Cyber Security Awareness ⁸⁹	The African Society for Cyber Security Awareness (ASCSA)	The African Society for Cyber Security Awareness (ASCSA) is a nonprofit organization with a mission to spread awareness campaigns and programmes across the African continent, focusing on digital citizens, especially women and children.	South Africa	Cyber security, awareness
27.	Content regulation for young people ⁹⁰	Film and Publication Board (FPB)	The FPB's awareness-raising efforts are nationwide. The organization conducts outreach initiatives targeting children, youth, caregivers/parents, educators, law enforcement agencies, child protection organizations and non-governmental organizations (as per approved activity plans) to ensure child online protection and safety.	South Africa	Child protection, online Safety

SN	Initiative	Host	About	Country/region/global	Focus
28.	Turkey Safer Internet Centre (Güvenli İnternet Merkezi Türkiye) ⁹¹	Information and Communication Technologies Authority (ICTA), Turkey	The Safer Internet Centre Turkey was established in 2017 and operates under the Information and Communication Technologies Authority (ICTA), Turkey. With its three units – the awareness centre, helpline and hotline – the centre guides parents, carers, guardians, educators, communities, public/private sectors, NGOs and governmental organizations, in Turkey, on how to protect children and Turkish society online. By working with stakeholders, such as related NGOs and service providers, the centre also organizes events, seminars and training programmes to inform children and young people about the reliable, efficient and conscious use of the Internet.	Turkey	Online protection, Internet safety, awareness and education
29.	The Global Digital Health Partnership ⁹²	World Health Organization (WHO) and others	The Global Digital Health Partnership (GDHP) is a collaboration of governments and the World Health Organization (WHO) formed to support the executive implementation of worldwide digital health services.	Global	Digital health services global collaboration implementation support
30.	Digital Health Innovation Action Plan ⁹³	The U.S. Food and Drug Administration (FDA)	The U.S. Food and Drug Administration (FDA) has a 'Digital Health Innovation Action Plan' to promote the development and use of digital health technologies. This includes regulatory support for digital health innovations and ensuring patients and healthcare providers can effectively use these tools.	United State	Digital health technologies, regulatory support, healthcare innovation

SN	Initiative	Host	About	Country/region/global	Focus
31.	Facing History and Ourselves ⁹⁴	<u>Facing History and Ourselves</u>	Facing History & Ourselves leverages lessons from history to empower educators and students to confront bigotry and hatred. Founded in 1976, the organization has grown globally, reaching millions of students through a network of educators. Their core values emphasize empathy, active listening, and standing against injustice. They offer educational programmes and resources designed to prepare students for civic life, fostering ethical and intellectual development. Facing History operates worldwide, including offices in the US, Canada, and the UK.	USA/Canada/UK	Civic literacy
32.	B.PAC, B.CLIP, B.ENGAGED, B.SAFE, B.ACCOUNTABLE, B.MOBIL, B.PROUD ⁹⁵	<u>Bangalore Political Action Committee</u>	The Bangalore Political Action Committee (B.PAC) is dedicated to improving governance and quality of life in Bengaluru. Their initiatives include B.CLIP for civic leadership development, B.ENGAGED for citizen participation and voter awareness, B.SAFE for safety measures, B.ACCOUNTABLE for promoting transparency, B.MOBILE for sustainable mobility, and B.PROUD for fostering civic pride. Through these programmes, B.PAC aims to enhance infrastructure, governance, and active citizen involvement in the city. This initiative aims to train aspiring leaders, promote democracy and child safety.	Bangalore	Civic literacy

SN	Initiative	Host	About	Country/region/global	Focus
33.	Digital Health Leadership Programme ⁹⁶	African Alliance of Digital Health Networks	This alliance brings together various digital health networks across Africa to collaborate on improving digital health services. It focuses on enhancing digital health literacy, sharing best practices and advocating for the integration of digital health into national health systems.	Africa	Integrated healthcare, digital health
34.	openIMIS ⁹⁷	Asia eHealth Information Network (AeHIN)	AeHIN promotes effective ICT use for better health outcomes in the Asia-Pacific, supporting digital health initiatives and literacy and fostering regional cooperation. A key project is openIMIS, the first open-source software for managing social health protection schemes by linking beneficiary, provider and payer data. The Community of Practice (CoP) acts as a regional hub, involving health education institutions, medical student associations, interoperability labs and related networks, to review, implement and evaluate openIMIS in academic and practical settings.	Asia-Pacific	Digital health services, collaboration
35.	Digital Health and Care Innovation initiative ⁹⁸	Digital Health Europe	Digital Health Europe provides comprehensive support to the Digital Health and Care Innovation initiative in the context of the Digital Single Market Strategy. The project's approach involves several actions that boost innovation and advance the Digital Single Market priorities for the digital transformation of health and care (DTHC).	Europe	Digital health, regional cooperation

SN	Initiative	Host	About	Country/region/global	Focus
36.	Digital Health Society (DHS) ⁹⁹	ECHAlliance Group	The Digital Health Society (DHS), as the data arm of the ECH Alliance Group, serves as an enabler for multi-stakeholder dialogue on digital health and health and care data policies and practices. DHS is a legacy of the Estonian Presidency of the Council of the European Union in 2017 and was formed to promote the adoption of digital health and the use of health data.	Europe	Mobile health, global health
37.	eSafety Commissioner ¹⁰⁰	Australian Government	The eSafety Commissioner provides online safety programmes and resources for young people, parents and educators. It promotes digital citizenship and works to prevent online harm.	Australia	Digital citizenship, online safety
38	Youth Activism Project ¹⁰¹	Youth Activism Project	Empowers youth to engage in advocacy and civic participation in the US.	United State	Activism, democracy

3.1.3 Digital Health Tools/Resources

Digital health tools offer significant benefits and are sometimes integrated into DHC tools through an app finder feature. This functionality connects users to various tools, enhancing their health and well-being. These tools typically include features like self-assessments, self-management resources, educational content, and community support, aligning with DHC objectives. The app finder facilitates access to these solutions, promoting digital, health, and civic literacy. Several tools were assessed based on their ability to address common health challenges faced by young people, ensuring relevance and impact.

The World Health Organization (WHO) defines common health problems among young people as a wide range of physical, mental and social obstacles that substantially influence their well-being.¹⁰² Unintentional injuries, notably those caused by road traffic accidents and drowning, are the major causes of mortality and disability among adolescents, with 115,000 adolescent lives lost in 2019 alone. Interpersonal violence is yet another major cause of concern, especially in low- and middle-income countries, contributing to a significant proportion of adolescent male deaths. Substance use, including alcohol, drugs and tobacco, begins early and is associated with numerous long-term health issues.¹⁰² Additionally, communicable diseases such as HIV, tuberculosis and lower respiratory infections pose serious risks, particularly in developing regions. Environmental factors, early pregnancy, malnutrition and a lack of physical activity further exacerbate health risks, highlighting the complex interplay of various factors affecting young people's health globally.¹⁰²

Most mental disorders are rare in childhood but develop during adolescence, which lasts as long as 24 years.¹⁰³ One in three—five children or adolescents is estimated to have an anxiety disorder at any point globally¹⁰³. Mental health problems, including depression and anxiety, are prevalent, with half of all mental disorders in adulthood starting by age 14, yet most remain untreated.¹⁰² Although the rates of suicidal thoughts, planning, and attempts are low among adolescents, these factors were the fourth leading cause of death for those aged 15–19 globally in 2019.¹⁰³

Some tools/resources promote health through the use of digital technologies by providing access to essential health information and resources. Symptom checkers such as WebMD Symptom Checker and Health Tools offer detailed explanations and possible diagnoses based on symptoms, fostering health information literacy and community engagement. Telemedicine apps such as HealthTap, Mayo Clinic and Teledoc empower users with healthcare information and telehealth services, enhancing health education and facilitating communication with healthcare providers. Fitness and wellness apps such as MyFitnessPal, Fitbit and Apple Health

track health metrics, provide educational content, encourage community participation, and promote a holistic approach to health management.¹⁰⁴ Additionally, apps focused on specific health conditions, such as Ada Health for AI-driven health assessments and BetterHelp for online therapy, support mental health management and advocacy, ensuring comprehensive support for digital health.

These tools/resources help young people manage their health and well-being and empower them to make informed health decisions to actively participate in their health journey. They play a role in contributing to individual health promotion and early prevention. The use of digital tools/resources to manage individual health and well-being is not necessarily a predictor of good health outcomes, but it does encourage individuals to better understand their health through a digital platform. Such skills promote digital literacy in the health space, therefore contributing to advancing DHC.

Table 3. Examples of Digital Tools/Resources Used to Help Young People Manage Their Health

SN	Health Concern	Tool	About	Type	Focus
1.	Symptom checkers	WebMD Symptom Checker and Health Tools	WebMD Symptom Checker is designed with a body map to help you understand your medical symptoms and provide trusted information on the possible diagnosis. It also includes health information and stories.	Website	Health information and community engagement
2.	Health workforce	HealthTap, Mayo Clinic, Kaiser Permanente App, Teladoc, Doctor On Demand, Oscar Health	Provides healthcare information and telehealth services and empowers patients in healthcare decisions. HealthTap is available in the United States. MayoClinic also delivers a daily dose of health news and practical advice. Combines health information, personal health management and health-related civic activities.	App	Health education and telehealth - allergies, antibiotics, asthma, aigh alood aressure (hypertension), online prescriptions, type 2 diabetes etc.. Book medical appointments, communicate with the care team, view test results, get expert advice on fitness, healthy eating, prevention and self-care practices.
3.	Fitness/Obesity	MyFitnessPal, Fitbit, Apple Health, Sweatcoin, Nike Training Club, Couch to 5k, Breathe2Relax	MyFitnessPal tracks health data, provides health and wellness content, and encourages community participation. Fitbits and AppleHealth also help monitor health metrics, offer health education and include community features for engagement.	Device/ App	These are calorie tracker apps. The apps allow one to track macros, vitamins and other micronutrients and see how everything you eat supports your goals. They provide essential articles and educational content on health and wellness and promote community participation.
5.	Menstrual Health	Flo, Period Tracker	Menstrual apps streamline cycle tracking and fertility awareness, empowering users with personalized insights and reminders for optimal reproductive health management.	App	Cycle tracking, ovulation prediction, symptom logging, personalized health insights, reminders for period and medication and secure data sharing with healthcare providers.
6.	Sexual Health	Planned Parenthood Direct	Sexual health apps provide users with accessible information, tools for contraception and STI management and support for enhancing sexual well-being. It aims to empower individuals to take control of their sexual health conveniently and confidentially.	Website/App	STI testing kits, access birth control prescriptions, receive sexual health information and connect with healthcare professionals for consultations and advice
9.	Diabetes	MySugr, Glucose Buddy	These apps manage diabetes, provide educational resources and promote community support for diabetes management.	App	Diabetes management and community support
10.	Blood Pressure	Instant heart rate, Qardio, Omron Connect, Blood	Blood pressure (BP) apps are designed to help users monitor and manage their blood pressure effectively.	App/ Device	Bluetooth-enabled reading entries, tracking and history logs, graphs and charts, reminders

SN	Health Concern	Tool	About	Type	Focus
		Pressure Monitor			for readings and medication, health insights, etc.
11.	Injuries/ Disabilities	AbleThrive, RehabCoach, WheelMate	Injuries and disability apps assist individuals in managing their conditions, fostering greater independence and improving overall quality of life through tailored support and resources.	App/ Website	Symptom tracking, rehabilitation exercises, progress monitoring, access to medical records, telemedicine consultations, etc.
12	Depression	BetterHelp	Provides online therapy, mental health resources and advocacy engagement opportunities.	App	Mental health and advocacy
13	Anxiety disorders	Anxiety reliever	Offers mental health resources, educational content on wellbeing, and community initiatives.	App	Mental health and community well-being
14.	Substance use disorders	My quit Buddy, Smokefree, I am Sober.	Helps individuals track their sobriety progress and connect with support groups, fostering a community of encouragement and accountability in recovery efforts. These apps provide resources for managing triggers, offering coping strategies and educational content to empower users in maintaining sobriety and improving overall well-being.	App	Daily check-ins and progress tracking, access to support groups and peer networks, motivational messages and reminders for sobriety goals
15.	Emotional well-being	Smiling Mind, Happify, Daylio	App for meditation or diary	App	Daily mood journaling and trend analysis, meditation
16.	Attention-deficit/hyperactivity disorder (ADHD)	Calm, Headspace, WhatsUP, 7 cups,	Provides tools for mental health management, educational content and community well-being initiatives.	App	Mental health and community initiatives
17.	Bipolar disorder	MoodKit, Insight Timer,	Enable users to monitor mood fluctuations and medication adherence, facilitating better self-management and stability in daily life. They also provide insights into mood patterns and triggers, helping individuals and their healthcare providers make informed treatment decisions.	App	Mood tracking tools, medication management reminders, insights into mood patterns, crisis support contacts
18.	Eating disorders	Recovery Record	Apps for eating disorders empower users to track eating behaviours and emotions, offering tools for developing healthy habits and connecting with supportive communities for ongoing encouragement and recovery support.	App	Meal logging and tracking, behavioral pattern recognition, nutritional information and guidance, supportive community forums
19.	Obsessive-compulsive disorder (OCD)	Liberate: My OCD Fighter	Apps for obsessive-compulsive disorder (OCD) assist individuals in managing intrusive thoughts and compulsive behaviours through structured exercises like exposure and response	App	Exposure and response prevention exercises, cognitive-behavioural therapy (CBT) techniques

SN	Health Concern	Tool	About	Type	Focus
			prevention, promoting gradual symptom reduction and improved daily functioning. They also encourage users to monitor progress and implement coping strategies to enhance quality of life.		
20.	Post-traumatic stress disorder (PTSD)	1 Giant Mind,	Provides tools for tracking symptoms, managing stress triggers and accessing therapeutic techniques such as relaxation exercises and cognitive restructuring. They support individuals in developing personalized coping strategies and connecting with mental health resources for ongoing support and treatment.	App	Symptom tracking and management, relaxation and mindfulness exercises, PTSD-specific therapies and resources, support for coping with triggers

This table was extracted from several sources including Farshchian & Vilarinho (2017); Ventola (2014) and Doyle-Delgado & Chamberlain (2020)^{104–106}

3.2 Assessment of Strengths

The strengths of the 38 knowledge, skills and capacity-building resources identified above (see Table 1) were assessed to determine which could be incorporated into or influence the design of DTH-Lab's forthcoming digital health citizenship toolkit. Resources were evaluated based on their contribution to the three dimensions of digital/health/civic literacy. Moreover, first-line digital health systems should equip all people with the necessary knowledge and skills to help build their capacity to fully utilize digital health solutions and become confident digital health citizens.²³ So, the form of capacity building used, including skills and knowledge, was also included in the assessment. Lastly, the third set of criteria used to assess the resources draws on the findings from DTH-Lab's work with youth in co-creating a blueprint for a digital-first health system.²³

In the global interim report, *Building a blueprint for digital first health systems: Findings from global youth consultations*, youth from around the world identified a set of core values and features that should inform the design and governance of digital-first health systems. The findings from the report show that systems should not only better predict and prevent physical and mental health challenges in the future but also support young people in promoting and managing their health and well-being today. Assessing resources based on the report's findings ensures that youth voices are included in the co-creation of the toolkit. By incorporating young people's needs and requests into the resource assessment, we can enhance the comprehensiveness of our toolkit.²³

Young people highlighted the importance of integrating new digital technologies into their healthcare journeys and how existing digital health solutions could adapt so that more people benefit from those solutions. The key values and principles identified by the youth consultations in creating digital first health systems were equity, trustworthiness, humanism, ethics and inclusiveness. The key features, or specific qualities, of digital first health systems identified by youth included knowledge building, quality personalized services, user-friendly tools and everyone interconnected. They want the highest quality of individualized health services offered via user-friendly solutions.

3.2.1 Criteria for Strength Assessment

The following criteria were used for strength assessment: DTH-Lab objectives and DFHS youth-identified values and features.

DTH-Lab Objectives

Features

1. Capacity building

An interactive platform that offers training and resources intending to equip users with knowledge and skills for managing personal health and well-being, understanding digital technologies, and being able to access online health information effectively.

- **Knowledge:** A knowledge-building tool/resource is any tool that actively allows for the creation, sharing, and enhancement of knowledge by encouraging exploration, collaboration, reflection, and critical thinking.
- **Skill:** A skill-building tool/resource provides interactive, hands-on, practical experiences to develop certain abilities, such as solving problems, critical thinking, or gaining technical expertise.

2. Digital, health and/or civic literacy

This tool improves any/all of the three forms of DHC literacy, which are digital, health or civic literacy.

- **Digital literacy:** A digital literacy tool/resource is a device designed to teach people how to use digital technologies effectively and safely, which includes how to be safe online, how to evaluate digital content, and how to manage digital devices.
- **Health literacy:** A health literacy tool/resource is a resource that assists persons in comprehending health information and applying it in ways that promote well-being, such as understanding medical words, receiving healthcare services, or managing personal health.
- **Civic literacy:** A civic literacy tool/resource is how a person is equipped or informed about his or her rights and duties as a citizen. This comprises knowledge of the structures of the government, democratic processes, and community participation.

DFHS Youth-Identified Values and Features

Values

1. Equitable

A tool/resource is considered equitable if it facilitates access fairly to all its users, regardless of their background; offers content in multiple languages; provides for heterogeneous learning needs through design; follows the principles of inclusive design; and is responsive to the needs of underserved or underrepresented communities.

2. Trustworthy

A trustworthy tool/resource is developed by credible sources, is accurate, provides evidence, is transparent, obtains good user feedback, has safeguards for the protection of privacy and security, has high educational value, is accessible, and supports users.

3. Humanistic

A tool/resource is humanistic if it focuses on the holistic development of individuals, teaches empathy and understanding, supports mental and emotional well-being, enables personal growth, and respects the dignity and autonomy of every single user.

4. Ethical

A tool/resource is ethical if it respects privacy, ensures security, promotes accuracy and neutrality of information, is transparent and values user autonomy and consent. It has features that requires one to sign in/sign up with passwords and have a personal account and resources.

5. Inclusive

An inclusive tool/resource allows access and usability for different abilities, backgrounds, and needs, so one and all can benefit despite their varying situations.

Features

1. Everyone interconnected

A connectivity tool/resource for everybody will be a communication platform. It would therefore provide a network for the conveyance of information and interaction between individuals or groups spread over places and environments.

2. Quality personalized services

Personalized quality services ensure that the tool/resource can tailor its features and support in relation to the requirements and preferences of each user for customized recommendations, helplines, advice, or functionalities from the tool against their specific requirements and behaviours.

3. User-friendly

This goes into user-friendliness, making the tool/resource easy to handle, manoeuvrable, with a well-thought-out interface. The user's experience of using the tool/resource should feel intuitive, with clear instructions that would make it available, easy, and effective for all categories of users.

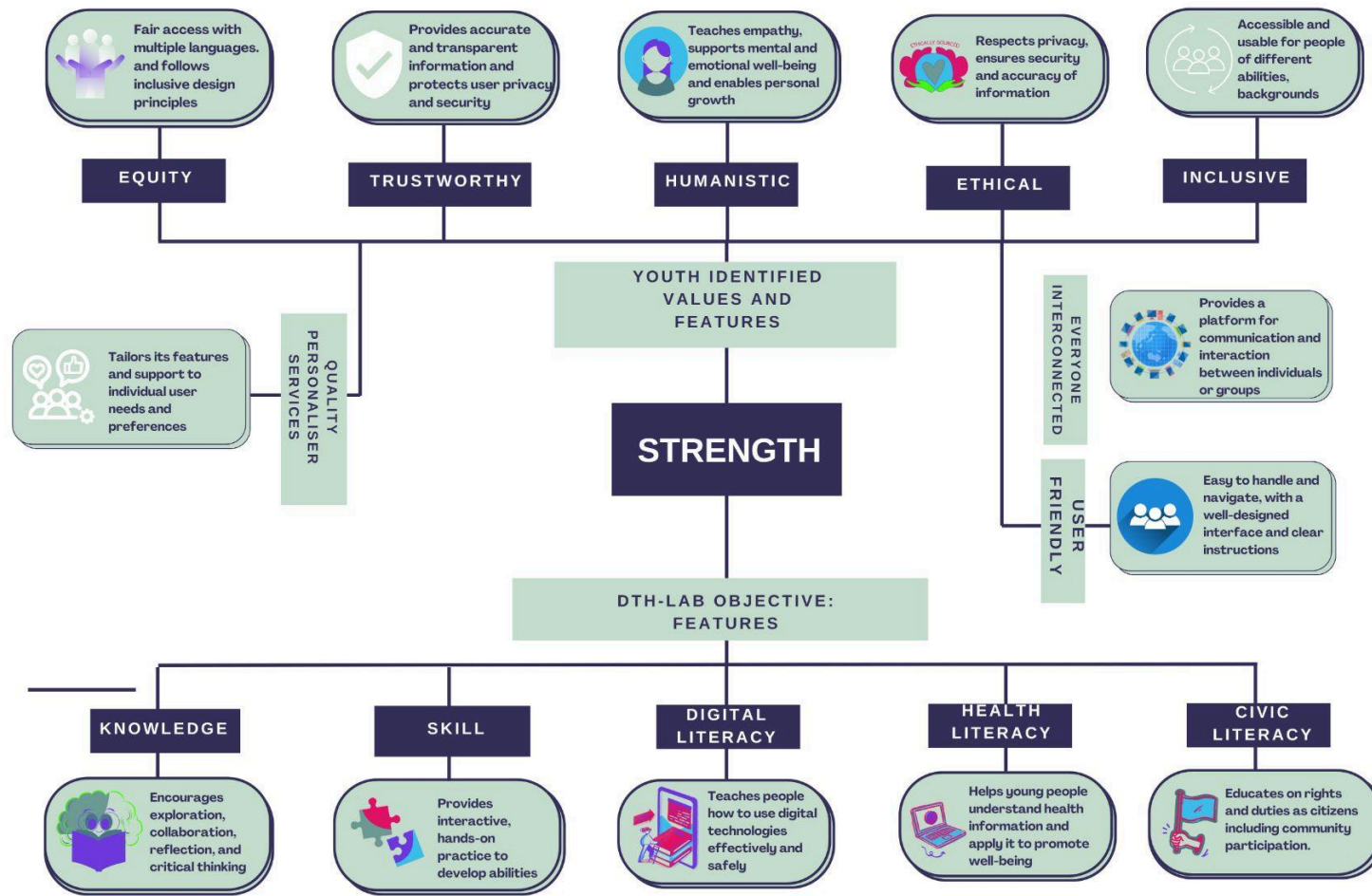


Figure 4: Criteria Used for Strength Assessment

Table 4 Comparative analysis was used to assess the strengths of the tools/resources

SN	DHC Tools/resources	DFHS REPORT YOUTH-IDENTIFIED VALUES AND FEATURES								DTH-LAB OBJECTIVE: FEATURES				
		VALUES					FEATURES			CAPACITY BUILDING		DHC LITERACY		
		Equitable	Trustworthy	Humanistic	Ethical	Inclusive	Quality personalised services	User Friendly	Everyone Interconnected	Knowledge	Skill	Digital Literacy	Health Literacy	Civic Literacy
1.	Kolibri	✓	✓		✓	✓		✓		✓	✓	✓	✓	✓
2.	Digital Citizenship+ Resource Platform	✓	✓			✓		✓		✓	✓	✓		✓
3.	Young Expert Tech for Health Resource Hub		✓							✓		✓	✓	
4.	BrainPOP Digital Citizenship		✓		✓			✓		✓	✓	✓		
5.	ReachOut		✓	✓	✓	✓	✓	✓	✓	✓			✓	
6.	Teen Health and Wellness	✓	✓	✓	✓		✓	✓		✓	✓		✓	
7.	Youth Mental Health Project		✓	✓	✓	✓	✓	✓	✓	✓			✓	
8.	Mental Health Curriculum and Toolbox		✓			✓		✓		✓			✓	
9.	iCivics		✓					✓		✓	✓			✓
10.	Teen Line		✓	✓	✓	✓	✓			✓			✓	
11.	Learning.com		✓		✓	✓		✓	✓	✓	✓	✓		
12.	The Mix	✓	✓	✓	✓		✓	✓	✓	✓			✓	
13.	Teen Health Source		✓	✓	✓		✓	✓		✓			✓	
14.	Scarleteen		✓	✓	✓		✓	✓		✓			✓	
15.	U-Report	✓	✓		✓		✓	✓	✓	✓	✓		✓	✓
16.	Webonauts Academy				✓	✓		✓	✓	✓	✓	✓		
17.	Digital civics academy		✓				✓		✓	✓	✓	✓		✓
18.	Be smart online (Foundation for Social Welfare Service)		✓	✓	✓		✓	✓		✓		✓		
19.	Learning for Justice		✓		✓			✓		✓				✓
20.	NetSmartz Workshop		✓		✓		✓	✓		✓	✓	✓		

SN	DHC Tools/resources	DFHS REPORT YOUTH-IDENTIFIED VALUES AND FEATURES								DTH-LAB OBJECTIVE: FEATURES				
		VALUES					FEATURES			CAPACITY BUILDING		DHC LITERACY		
		Equitable	Trustworthy	Humanistic	Ethical	Inclusive	Quality personalised services	User Friendly	Everyone Interconnected	Knowledge	Skill	Digital Literacy	Health Literacy	Civic Literacy
21	Social Media U		✓				✓			✓	✓	✓		
22	Be smart online (Childnet)		✓				✓	✓		✓		✓		
23	Mundo	✓				✓	✓	✓		✓		✓	✓	✓
24	Adolescent & Youth Sexual & Reproductive Health Toolkit		✓		✓		✓	✓	✓	✓	✓		✓	
25	Media Smarts (Canada Centre for Digital Literacy)		✓					✓		✓	✓		✓	
26	Netsafe		✓	✓	✓		✓	✓		✓		✓		
27	My Kialo				✓		✓	✓	✓	✓				✓
28	Civic Tech Field Guide	✓	✓				✓	✓		✓				✓
29	Better Internet for Kids (BIK)	✓	✓		✓	✓	✓			✓	✓	✓		
30	Keep it real online	✓	✓	✓	✓		✓	✓		✓		✓		
31	Media and Information Literacy (MIL)	✓	✓			✓		✓		✓	✓	✓		✓
32	The Civic Center		✓				✓	✓		✓	✓			✓
33	Civics for all		✓					✓		✓				✓
34	Teaching For Democracy Alliance		✓					✓		✓				✓
35	Civics Learning Project		✓		✓			✓		✓	✓			✓
36	Rumie	✓	✓					✓		✓		✓	✓	✓
37	Hesperian Health Guides	✓	✓					✓		✓			✓	
38	All Children Reading: A Grand Challenge for Development (ACR GCD) Library Apps	✓	✓			✓				✓				✓

3.2.2 Overview of Strength Assessment

Based on the author's interpretation of the assessment criteria, no tools/resources were found that exemplify all of the values — equitable, trustworthy, humanistic, ethical, and inclusive — expected in a digital health citizenship tool. Most were lacking in specific values, particularly being equitable and inclusive. Some tools were found to be not inclusive because they did not cater to individuals with reading disabilities, or they lacked materials in accessible formats such as audio, or alternative languages. Meanwhile, other tools were not deemed equitable because they were only available in one or two languages, making them inaccessible to a broader, multilingual audience. Additionally, some tools/resources were assessed as not being completely trustworthy. This is because despite being designed by credible sources, they may have low educational value, limiting their impact on improving literacy comprehensively. These tools often provided information restricted to just one form of literacy, be it digital, health, or civic.

Some tools were considered unethical. Although they promoted fairness and inclusivity, they did not prioritize privacy and security: lacking features such as sign-in/sign-up options that would give users a sense of personalization and data security. Interestingly, most of the tools found to be humanistic were health literacy tools, which also included sign-in/sign-up features, thereby respecting users' privacy and ensuring a more personalized experience.

In terms of features, most tools did not integrate digital, health, and civic literacy resources. The majority focused on only one of these areas, with only a few, like Kolibri, offering comprehensive resources across all three. Nevertheless, the tools were generally user-friendly. Most of the tools that were health literacy-focused and demonstrated humanistic values also provided quality personalized services, offering users a more tailored and supportive experience. In contrast, the majority of the other tools lacked this level of personalization. Very few tools incorporated the 'Everyone Interconnected' feature, which is essential for fostering collaboration and shared learning. While all the tools offered knowledge-based resources, they fell short in helping users develop practical skills.

3.2.3 Tools That Met the Strength Criteria

Thirty-nine tools were assessed and six of the tools fulfilled at least nine out of the 13 criteria for assessment. Of these six tools, five of them were extensively assessed without restrictions and 'Teen Health and Wellness' could not be assessed due to restrictions. Here is a breakdown of some of the most promising tools/resources identified and designed to improve digital, health and civic literacy among young people.

1. Kolibri

Kolibri was developed by the Learning Equality team, a non-profit organization focused on providing access to high-quality educational resources in low-connectivity and underserved contexts. It is a global resource that can be installed on a computer, making essential tools and resources readily available to users. Kolibri meets most criteria for assessment. It offers resources in several languages, facilitating fair access for all users. The tool is inclusive, not only by providing multilingual content but also by offering resources in various formats, including audio, text, and video. Users can engage with activities such as 'Practice', 'Listen', 'Create', 'Read', 'Explore', 'Reflect', and 'Watch'. Kolibri is also considered trustworthy due to its use of high-quality educational content. Additionally, it is assessed as ethical because users can secure their accounts with password protection. However, it was not deemed humanistic, as it lacks strong mental and emotional support features for its users.

Kolibri is a tool designed for young people and their educators or public administrators. It offers a range of resources aimed at enhancing digital, mental, and civic literacy for young people. It includes numerous capacity-building materials that effectively improve both knowledge and skills. The tool is user-friendly, featuring an intuitive interface that is easy to navigate. However, it lacks quality personalized services and does not provide a platform for users to connect with one another or with external support.

Kolibri was assessed as the best tool, meeting 10 out of the 13 criteria used for evaluation. Its strengths make it a valuable resource and a strong foundation for developing an even better DHC tool for young people. By building on its existing features, future iterations can incorporate all the necessary criteria to enhance accessibility, inclusivity, and overall effectiveness.

2. ReachOut

ReachOut Australia is a leading online mental health service that provides support for young people between the age of 18-25 and their parents. Designed to offer accessible and relevant health literacy resources, it aims to promote mental well-being among youth. The platform is available online, making essential mental health information and tools readily accessible. ReachOut Australia meets several criteria for assessment. It is trustworthy due to its evidence-based content, developed in collaboration with mental health professionals. The service is also humanistic, offering features that allow young people to interact with both mental health support teams and peer supporters. This aspect makes it inclusive, as users who may have difficulty reading the content can call in to seek information or assistance as needed. It also provides a variety of content types, including articles, videos, and interactive tools,

which cater to different learning styles. The tool also allows users to sign in, giving young people a personalized experience of the tool. However, it is important to note that ReachOut Australia is an Australia-based platform and is not available to the global community, which limits its equity in providing mental health support.

The tool includes several features, support options, and activities, such as breathing exercises and opportunities for connecting with peers. Through its online community, the platform fosters interconnectedness among users. While it effectively improves users' knowledge, it does not significantly enhance their skills. ReachOut Australia offers quality personalized services, such as a hotline and text line, and is designed to be user-friendly. The tool connects users to several mental health-promoting applications that they can make use of, including Headspace, Calm Harm, Recovery Record and many others. There is also a 'Next Step' feature, providing users with a questionnaire that helps assess their current mood. However, it primarily enhances health literacy without extending its focus to digital or civic literacy.

3. Youth Mental Health Project

The Youth Mental Health Project is an innovative online platform designed by the HeyPeers organization, dedicated to supporting the mental well-being of young people below the age of 25. The tool is available for use globally and the project aims to provide accessible and relevant resources, empowering youth by offering information, tools, and community connections that promote mental health awareness and resilience.

The platform meets several criteria for assessment. It is trustworthy, featuring evidence-based content created in collaboration with mental health professionals and educators. It also allows for peer interaction, professional interaction and group forums. The Youth Mental Health Project is inclusive, providing resources in various formats, including articles, videos, and interactive activities, to cater to diverse learning styles. Users can engage with features such as self-help tools and peer support options, fostering a sense of community and shared experience. The tool has several values but was not found equitable. The tool has a call line but it is not available in several languages.

The Youth Mental Health Project is a comprehensive health literacy tool that offers valuable resources on various topics, including pregnancy, substance abuse, depression, anxiety, chronic illness, and more. The platform is designed to foster interconnectedness among users, providing access to support groups, meeting rooms, helplines, chat rooms, and peer support networks. This allows individuals to connect with one another, share experiences, and seek assistance in a collaborative environment. With a user-friendly interface, the platform ensures that users of all ages can easily navigate the site to find the information they need. It features a

wealth of content that enhances health literacy, helping users understand the complexities of mental health issues and their impact on overall well-being. The availability of resources related to specific health concerns — such as addiction, bipolar disorder, borderline personality disorder, brain injury, cancer, depression, and suicide — empowers individuals to improve their knowledge in managing these challenges.

Users can access tailored support through various channels, including peer support from individuals with lived mental health experiences, ensuring that they receive relevant guidance and understanding and providing them with quality personalized services. While the platform effectively promotes health literacy, it does not specifically address digital or civic literacy, focusing primarily on health-related topics. Overall, the Youth Mental Health Project serves as a vital resource for enhancing health literacy and promoting well-being through interconnected support and quality information.

4. The Mix

The Mix is an inclusive and trustworthy tool designed and managed by a team of health professionals for young people under the age of 25 globally. It aims to provide young people with accessible, relevant, and confidential support for their mental health and well-being. The user-friendly platform, enhanced by Google Translate integration, promotes equity by allowing users to access content in multiple languages. The Mix offers credible health literacy content curated by professionals, ensuring the information is trustworthy. It features a chat line for texting support, though it lacks a call line, which impacts its inclusivity. The tool is ethical, prioritizing user privacy and allowing for personal password-protected accounts. However, much of the content is presented in a readable format, which may limit accessibility and inclusion of those with reading difficulties.

It provides quality personalized services through 24/7 support for young people, including phone, text, and web-based help. The Mix fosters interconnectedness through an active online community and offers a diverse range of resources focused on mental well-being, addressing health literacy, although it is less concentrated on digital literacy, civic literacy and skill development. Originally known as YouthNet and Get Connected, The Mix is designed for individuals under 25 years of age. Its integration with Google Translate allows for immediate translation of all content into several recognized languages, making it accessible to a broader audience. Users can freely access the platform by simply signing up, ensuring anonymity, privacy, and security. The tool is also humanistic, offering round-the-clock support through various channels, including phone, text, web, social media, and counselling services.

Overall, The Mix embodies many of the essential values needed in a digital health citizenship (DHC) tool, making it a vital resource for young people seeking support and information.

5. U-Report

U-Report, developed by UNICEF, is a global platform designed to promote civic literacy and engage young people under the age of 30. It is equitable and trustworthy, with local platforms available in multiple languages, ensuring global access for diverse communities. Its commitment to ethical practices is evident in its design, which prioritizes user privacy and security. U-Report can be installed through its mobile application, allowing young people to have a private and personal experience with the tool. Although it allows young people from various backgrounds to participate and share their voices on topics that matter to them, the main platform is more of readable texts.

The platform offers opportunities for young people to build knowledge in advocacy, research, and digital engagement, fostering a sense of interconnectedness through its online communities. U-Report enhances civic literacy by providing resources related to advocacy, blogging, interviewing, and social media. U-Report includes a mental health chatbot that provides young people with immediate support and insights into their concerns, addressing a vital area of health literacy. Despite this, the platform's overall health resources are limited compared to its civic content. U-Report features a section that helps young people find opportunities such as scholarships, workshops, campaigns, clubs, and internships. This helps young people build their skills capacity.

Overall, U-Report serves as a valuable tool for empowering young voices and facilitating engagement in social issues, while also providing some important health-related resources.

4. DISCUSSION AND RECOMMENDATIONS

4.1 Gaps and Promising Features

Several tools were identified and reviewed, and 38 digital health citizenship (DHC) tools/resources were assessed for their strengths based on the set criteria. Significant gaps were evident after the analysis, particularly regarding equity, inclusivity, and integrating all three literacy forms for DHC. Many tools are not fully equitable and inclusive, as they lack accessibility in multiple languages or formats for individuals with disabilities. For instance, certain platforms do not accommodate users with reading difficulties, relying primarily on text-based content. Most of the assessed tools require an Internet connection, restricting those in low-resource areas (with limited or no access to electricity and Internet) from benefiting. Notably, of the tools analysed, only the health literacy tools incorporated elements with a truly compassionate and person-centred approach, such as hotlines, chatlines, and text lines that allow users to ask questions and receive personalized support in times of need. Additionally, civic literacy tools are neither as comprehensive nor as common as those focused on digital or health literacy, further indicating a gap in supporting young people's civic engagement and awareness.

Furthermore, while most tools focus on only one of the three literacy forms – digital, health or civic literacy – only Kolibri and Mundo AI integrate all three forms of DHC literacy, which limits the effectiveness of the available DHC tools in preparing young people for comprehensive digital health citizenship. Additionally, the lack of features that foster interconnectedness and skills development is another common shortcoming in the existing tools. While tools like ReachOut provide user support through chatlines and connections to other mental health applications, they often fall short in developing practical skills or digital competencies. The tools are more focused on improving users' knowledge and not skills. Addressing these gaps by enhancing inclusivity, multi-literacy integration, and practical skill-building could significantly improve the impact of these DHC tools.

There were several promising features found in existing tools that can be included in the forthcoming toolkit of DTH-Lab. The most promising features generally centre around their user-friendly design; trustworthy literacy materials that promote DHC; sign-in features that promote privacy; integration of Google translator to aid equity; tools offering the option to be downloaded and installed, allowing young people to access and revisit the resources whenever needed, even without a continuous internet connection. Tools like Kolibri, ReachOut, and

U-Report exemplify strengths by offering accessible resources, supporting multiple languages, and incorporating elements like privacy and interactivity, which are especially vital for youth engagement. Kolibri, for example, stands out with its diverse format options, allowing users to engage in a variety of activities, such as practicing and creating content. Similarly, ReachOut offers interactive support systems and community connection opportunities that promote health literacy, while U-Report effectively enhances civic literacy by engaging young people in advocacy and social awareness.

4.2 Recommendations For Developing New DHC Tools

To develop more comprehensive digital health citizenship tools that comprises youth-identified values and features, as well as promoting DTH-Lab objectives, these are the promising features to consider:

1. **Equitable:** Incorporate tools like Google Translate or built-in multilingual support to eliminate language barriers. Design for accessibility in low-resource settings with low-bandwidth modes and offline functionality, allowing users to pre-download key resources.
2. **Trustworthy:** Display the credentials and affiliations of professionals and organizations behind the content. Regularly update and review materials to ensure accuracy, and implement a verification process for all information provided.
3. **Inclusive:** Make the platform accessible to users with disabilities by supporting screen readers, text-to-speech, and adjustable text sizes. Include downloadable content in multiple formats (audio, video, text) for offline access in low-resource areas.
4. **Humanistic:** Offer crisis support through a helpline, chatline, or text line where young people can reach out to trained responders. Include peer-to-peer support spaces to foster community and mutual support among users.
5. **Ethical:** Ensure high standards of privacy and security by offering secure login options (such as two-factor authentication) and anonymous browsing. Communicate clearly about data collection, storage, and usage, giving users control over their data with options to delete or anonymize it. Obtain informed consent for any health data collected and prioritize user agency.
6. **User-friendly:** Focus on intuitive navigation and a clean, simple interface for users of varying digital literacy levels. Include an on-boarding tutorial to guide new users

through the platform's features. The toolkit should allow users to customize their experience, such as choosing learning modules or setting personal goals. Personalized learning paths based on individual needs or interests can significantly increase engagement and learning effectiveness. The platform should be properly sorted according to literacy form, area of focus, and available form of information (article, audio, video etc.). This helps young people have easy access to the materials they need without going through piles of materials and losing interest in the process.

7. ***Everyone inter-connected:*** Provide community forums or group spaces to enable users to connect, share experiences, ask questions and support each other. This fosters a sense of belonging and collaborative learning among users. This can be done using the platform or connecting social media platforms that make interconnection easier among young people.
8. ***Quality personalized services:*** Use a tailored questionnaire to offer personalized resources and recommendations based on each user's health needs, language, and preferences. Include regular check-ins and personalized feedback. With careful ethical considerations, incorporating AI-driven personalization could further enhance the toolkit by suggesting content based on the user's progress or preferences, while still ensuring privacy and transparency in data usage.
9. ***Digital, health and civic literacy:*** To promote digital, health, and civic literacy, the development of interactive modules is essential. These modules should cover the foundational knowledge and practical skills needed for young people to effectively engage in each of these literacy areas. The digital literacy modules should include content on safe and responsible Internet use, data privacy, and digital communication skills, enabling users to navigate online spaces confidently and securely. Health literacy modules should focus on understanding basic health concepts, recognizing the importance of mental and physical well-being, and accessing reliable health information from trusted sources. In the context of civic literacy, modules should address topics like understanding civic rights and duties, the role of digital tools in civic engagement, and how young people can participate in community decision-making and advocacy, both online and offline. These modules should also foster critical thinking and decision-making skills, empowering young people to evaluate information critically, understand their rights and responsibilities in both health and digital engagement and take proactive steps to enhance their well-being and participate meaningfully in society.

10. **Knowledge and skills:** Equip young people with essential skills across digital, health, and civic literacy. Include practical resources such as tutorials on digital literacy (safe online practices, navigating health platforms, protecting personal information), health management tools (common health problems among young people, in particular mental health-related issues), and civic engagement activities (understanding their rights, finding community resources, being involved in voting and advocating for health issues). Offer interactive guides and real-life scenarios to build users' confidence in effectively managing their health, participating in digital spaces responsibly, and engaging as informed citizens.

To ensure any DHC platform is user-centred, culturally relevant, and responsive to the needs of young people, further research and targeted consultations should be considered. This includes:

1. Being a global tool, research into the specific cultural expectations and digital needs of various regions will guide content and feature development. This approach will help DTH-Lab avoid a one-size-fits-all solution, ensuring that content respects and resonates with diverse cultures and customs. It is essential to gather young people's opinions on the most effective platforms for promoting DHC among their peers – whether through a website, app, social media platform, or other means. Furthermore, input on key features like group forums, sign-in options, and culturally appropriate materials that foster skill-building can play a crucial role in shaping DTH-Lab's tool development.
2. The tool needs to be managed by young people for young people. Creating youth advisory boards would give young people a direct role in shaping the toolkit, keeping it aligned with the evolving needs of young people. This would also give the toolkit greater legitimacy and ensure it stays relevant and appealing to young users.
3. User Experience (UX) Testing with Target Groups: conducting UX studies with young people from various backgrounds, educators, and health professionals will provide valuable insights into how users interact with the toolkit and how it could be made more intuitive. Usability testing with prototypes will also allow for refinements before full deployment.
4. Collaborations with schools, local organizations for civic literacy, young people's health-promoting organizations, and digital literacy coalitions can enhance the toolkit's content, provide expert validation, and support wider distribution across

the globe, ensuring more young people have access to the tools and not just specific groups.

These efforts will allow for refining the platform's features, enhancing accessibility, and effectively integrating digital, health, and civic literacy components in ways that resonate with diverse audiences.

5. CONCLUSION

The development of a DHC platform that truly serves young people across the globe requires a deep understanding of the cultural, social, and digital landscapes in which they live. Being designed for young people, the toolkit also needs to be more user friendly and designed in a way that is visually appealing to the target audience. This analysis is a step towards creating a tool that is not only adaptable to diverse regional needs but also one that can engage young users effectively by being accessible, inclusive, and relevant. The involvement of young people in the design and management of the platform ensures that it remains responsive to their evolving needs and interests.

By integrating feedback from youth, educators, and health professionals, and collaborating with local organizations, the DHC platform can be refined and tailored to maximize its impact. Ultimately, the success of the platform will depend on its ability to foster meaningful engagement, promote health and civic literacy, and provide young people with the knowledge and tools to navigate their health and well-being in a rapidly changing digital world.

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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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