



Promoting Well-being in Digital Education

Proposal for a Model of Emerging Practices

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Abstract

The integration of well-being into digital education is a growing priority at the EU level, reflecting efforts to ensure healthier and safer online experiences for children and youth and their responsible use of digital technologies. The Council of the EU's 2022 Conclusions on supporting well-being in digital education marked a pivotal moment for WBDE, recognising the impact of digital transformation on learners' cognitive, physical, social, and emotional lives. Supported by the Digital Education Action Plan 2021-2027, these initiatives aim to enhance digital education ecosystems.

This study by the Joint Research Centre and Visionary Analytics deepens the understanding of WBDE, identifying policies, practices, and evidence from schools across Member States. A key output is the proposed Model of Emerging Practices promoting well-being in digital education structured around key core domains with guiding principles. It also suggests recommendations for education stakeholders to implement the Model. Key conclusions highlight the need for integrated policies, mindful technology use, and design considerations for promoting well-being. Addressing the digital divide and fostering whole-school and community approaches are crucial for achieving WBDE. Collaborative efforts among stakeholders are essential for developing strategies that integrate well-being principles into digital education, ensuring supportive and inclusive environments. Insights from this study will contribute to the EU's 2030 Roadmap on the future of digital education and skills.

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Executive summary

EU Policy context

Well-being in digital education is emerging as a key policy priority at the European Union level, reflecting the European Commission's efforts to ensure healthier and safer online experiences for children and youth and their responsible use of digital technologies. The Council of the European Union's 2022 Conclusions on supporting well-being in digital education marked a pivotal moment, integrating past initiatives and providing new directions. These Conclusions recognise the opportunities and challenges of digital transformation, affecting learners' cognitive, physical, social, and emotional lives, and suggest actions to integrate well-being into digital education policies across the European Union. The Digital Education Action Plan 2021-2027 supports this agenda by enhancing digital education ecosystems and promoting inclusive education. Complementary policies include the General Data Protection Regulation, the Digital Services Act, the 2022 Council Recommendation on Pathways to School Success and the 2023 Council's Conclusions on mental health. The European Commission's 2024-2029 priorities focus on social media impacts, addictive online designs, and cyberbullying. The 2025 Union of Skills promotes Artificial Intelligence literacy and the update of the Digital Competence Framework. Insights from this study will complement the European Union's 2030 Roadmap on the future of digital education and skills.

Key conclusions

This report, based on a study by the Joint Research Centre and Visionary Analytics, aims to deepen the understanding of well-being in digital education in the European Union. It identified policies and practices, gathered evidence from 12 schools in four Member States, and consulted various education stakeholders. The report offers practical tools, including a **Model of Emerging Practices for Well-being in Digital Education** and recommendations for educational stakeholders. The following conclusions can be drawn from the research results:

- 1. Need for integrated policies:** tackling the priority of promoting well-being in digital education contexts requires integrated view of cross-sectoral policies and school strategies on both well-being and on digital technologies in education. This integration is crucial for creating inclusive and supportive educational environments that address the diverse needs of learners, teachers and educators across Member States.
- 2. Balanced use of digital technologies in education:** although digital technologies provide significant educational benefits, it is essential to select and use them mindfully to mitigate negative impacts on physical, psychological, cognitive and social well-being. Policies should emphasise age-appropriate, purposeful, and balanced technology use, supported by unplugged pedagogies.
- 3. Importance of technology design considerations:** data privacy, safety, reporting mechanisms, accessibility for all learners and user-centric principles that foster positive social interactions are crucial technology design aspects for promoting well-being.
- 4. Addressing the digital divide:** the persistent digital divide remains a significant barrier to achieving well-being in digital education. Addressing disparities in digital competences among teachers and learners, as well as infrastructural and cost barriers, is essential to ensure that all learners, teachers and educators have equitable access to digital tools and resources for education.

- 5. Whole-school approaches:** emerging practices highlight the effectiveness of combining a whole-school approach including community involvement. This collaborative model fosters shared responsibility for well-being, encouraging school leaders, teachers, learners, parents, and the broader community to actively promote well-being in digital education. Awareness-raising and training for all actors are key priorities.
- 6. Stakeholder collaboration:** the recommendations emphasise the importance of collaboration among policymakers, school leaders, teachers, parents, education technology providers and health professionals. Working together, these groups can develop and implement strategies that integrate well-being principles into digital education, ensuring school and home environments that are supportive, inclusive, and conducive to the well-being of all participants.
- 7. Need for continuous research to inform an evolving policy:** Well-being in digital education is rapidly evolving, driven by emerging AI technologies, among others. Ongoing evidence-based research is vital to inform policy updates and practical guidance as new challenges arise – including Artificial Intelligence and Virtual Reality’s impacts on cognitive development, emotional and mental resilience ¹, inappropriate content exposure, human agency, and distraction; how to reduce risks from harmful content; understanding interactions between psychological and physical/social well-being and multi-device screen time effects; and cooperation models with education technology providers. Timely policy responses are essential to equip stakeholders with evidence-based strategies to address technological change, enabling EU and Member States to adapt policies and practices to safeguard learners’ and educators’ well-being in dynamic digital ecosystems.

Main findings

The research on well-being in digital education highlights the importance of integrating well-being principles into digital education across the European Union. Key findings include:

- 1. The European Union policy framework**, including the 2022 Council Conclusions and the Digital Education Action Plan 2021-2027, has prioritised well-being in digital education alongside national policies. Continued policy alignment is crucial for addressing digital education challenges. Insights from this study will contribute to the 2030 Roadmap on the future of digital education and skills.
- 2. Digital technologies** such as computers, mobile phones, and communication mobile apps are used for classroom instruction, homework, and leisure activities, blurring the lines between educational and personal use. Collaboration among educational actors is essential for promoting well-being in digital education.

¹ Resilience is the process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adjustment to external and internal demands. A number of factors contribute to how well people adapt to adversities, predominant among them (a) the ways in which individuals view and engage with the world, (b) the availability and quality of social resources, and (c) specific coping strategies. Psychological research demonstrates that the resources and skills associated with more positive adaptation (i.e., greater resilience) can be cultivated and practiced. American Psychological Association Dictionary of Psychology, <https://dictionary.apa.org/resilience> (accessed 15/12/2025).

3. **Digital technology use impacts learners, teachers, and educators**, enhancing cognitive and social learning while posing well-being challenges like fatigue, headaches, disrupted sleep, digital distractions, cyberbullying, anxiety and addiction. The digital divide, due to disparities in digital competences and infrastructure in schools and at home, can exacerbate inequalities affecting well-being, highlighting the need for improved digital skills and equal access.
4. **Digital technology design elements**, such as data privacy, social interactions, and accessibility, are vital for fostering supportive learning environments, promoting autonomy, social cohesion, and equitable access, especially for those with special needs.
5. **A Model of Emerging Practices promoting well-being in digital education** is proposed as a first attempt to define a model of practices to enhance well-being in digital education, structured around key core domains with guiding principles. It emphasises a whole-school approach with strong leadership and collaboration, in particular with educational technology providers; empowering and supporting the school community actors through awareness and training, guidelines and adequate resources; the use of specific pedagogical approaches such as developing socio-emotional skills, using age-appropriate content and media, balancing screen time considering unplugged pedagogies, promoting collaboration and peer learning, mutual support, responsible behaviour, and promoting healthy habits; ensuring digital readiness and inclusion; and, curriculum adaptation. The Model offers a flexible framework for designing, implementing, and evaluating practices promoting well-being in digital education.
6. **Stakeholder recommendations** call for cohesive efforts from policymakers, school leaders, teachers, parents, Education Technology providers, actors from the health field, and community stakeholders to integrate well-being into digital education, ensuring supportive and inclusive environments.

Related and future Joint Research Centre work

Recent related work from the European Commission's Joint research Centre includes research on the impact of social media on adolescents' mental health and well-being ², on loneliness ³, minors ⁴ and cyberbullying ⁵ to support the current mandate of the European Commission to develop an Action Plan against Cyberbullying and an enquiry on social media. Complementary to the above, the Joint Research Centre has developed a new version of the European Digital Competence Framework

² Bertoni, E., Centeno, C. and Cachia, R., Social media usage and adolescents' mental health in the EU, European Commission, Ispra, 2025, JRC141047.

³ Blasko, Z. and Castelli, C. (2022). Social Media Use and Loneliness, EUR 31092 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-76-53092-3, doi:10.2760/700283, JRC129042.

⁴ European Commission: Joint Research Centre, Beullens, K., Bozzola, E., Cataldo, I., Hale, L., Kent, M., Montag, C., Nivins, S., O'reilly, M., Rubæk, L., Schiøtz Thorud, H.-M., Sterpenich, V. and Vandenbosch, L., Minors' health and social media: an interdisciplinary scientific perspective, Manolios, S., Sala, A., Sundorph, E., Chaudron, S. and Gomez, E. editor(s), Publications Office of the European Union, Luxembourg, 2025, <https://data.europa.eu/doi/10.2760/3795891>, JRC141090.

⁵ Cachia, R., Villar Onrubia, D., Barreda Angeles, M., Economou, A. and Lopez Cobo, M., Cyberbullying: Considerations for a common definition, Publications Office of the European Union, Luxembourg, 2025, <https://data.europa.eu/doi/10.2760/7772296>, JRC143340.

([DigComp 3.0](#)), which addressed digital well-being in its *Competence 4. Safety, well-being and responsible use*.

Quick guide

In this report, the reader will find the following content:

1. In the introduction, the definition of well-being in digital education used for this research that is based on a policy and literature review, along with the research objectives, methodology and approach.
2. In the second chapter, the emerging policy context in the European Union on well-being in digital education.
3. In the third chapter, the key findings, including an analysis of policies and initiatives promoting well-being in digital education in the European Union Member States; the use of technologies in school settings; key digital technology design elements to promote well-being in digital education; the impact of digital technology use on the well-being of learners, teachers and educators; a Model of Emerging Practices promoting Well-Being in Digital Education; and recommendations for education stakeholders.
4. In the final Chapter, the conclusions and opportunities for future research.

In the Annexes the reader will find a Glossary ([Annex 1](#)), the list of Member States' policies and initiatives promoting well-being in digital education ([Annex 2](#)), the list of technologies used in school settings ([Annex 3](#)), the technology design elements relevant to well-being in digital education ([Annex 4](#)), the analysis of emerging practices promoting well-being in digital education ([Annex 5](#)), the recommendation's contribution to the implementation of the Model ([Annex 6](#)), the suggested optional [SELFIE](#) questions on well-being in digital education ([Annex 7](#)) and the list of engaged stakeholders along the study ([Annex 8](#)).

1. Introduction

The digital transformation of education has accelerated dramatically, particularly following the COVID-19 pandemic, presenting both opportunities and challenges for well-being in digital education (WBDE) (Cachia et al, 2023). While digital technologies can enhance teaching, learning, and inclusivity, their rapid integration also risks exacerbating inequalities, increasing screen-time pressures, and affecting the mental and social well-being of students, teachers, educators, and school communities. As a follow-up of the Council of European Union's Conclusions Supporting Well-being in Digital Education (2022) this report presents the results of a study on well-being in digital education, conducted by the Joint Research Centre in collaboration with Visionary Analytics, which aims to contribute to a deeper understanding of well-being in digital education (WBDE) in the EU by identifying policies and emerging practices, gathering evidence from 12 schools across four Member States and consulting a range of education stakeholders. It provides practical tools, including a Model of Emerging Practices for WBDE and set of optional SELFIE questions, and recommendations to educational stakeholders. These resources aim to ensure digital education supports and does not compromise the well-being of learners, teachers and educators. The study focused on primary, lower secondary, upper secondary, and IVET education levels.

1.1. Definition of well-being in digital education

Although at the time of the study, no actual definition was found in the literature for well-being in digital education, the definition, as provided in the 2022 [European Council conclusions on supporting well-being in digital education](#), bring together several key aspects whereby well-being in digital education is defined as *“a feeling of physical, cognitive, social and emotional contentment that enables all individuals to engage positively in all digital learning environments including through digital education and training tools and methods, maximise their potential and self-realisation and helps them to act safely online and supports their empowerment in online environments”*.

Starting from this definition, the study initially aimed to conceptualise WBDE through a literature review and expert exploratory interviews to create an operational working definition. It analysed current definitions and frameworks of **well-being** offered by researchers and international organisations, which focus on the well-being of people (OECD, 2019b), children (UNICEF, 2022), schools (European Commission et al., 2021), and child learning (Awartani and Looney, 2016). Although differences between these approaches exist (e.g., focusing only on positive states of well-being), definitions and frameworks offer *a holistic approach that emphasises the complexity of dynamic human well-being, highlights the different types of well-being (e.g., psychological, social, emotional, physical), and underscores the importance of the environment*. Apart from the extensive analysis of the well-being of children and the whole-school community (European Commission et al., 2021), the few examples of well-being definitions and frameworks that are connected to education implicitly address the 'digital' dimension (Awartani and Looney, 2016; UNICEF, 2022).

A particular branch of the well-being literature focuses on **digital well-being**, which examines the relationship between technology use and well-being of the individual. Here again, several definitions and frameworks are available (Burr et al., 2020; Monge Roffarello and De Russis, 2021; Passey and Albright, 2021; Vanden Abeele, 2021; Yue et al., 2021). Across these different proposals, certain commonalities emerge that can help better characterise digital well-being: *it consist of not solely the absence of negative effects but also the presence of positive effects; it encompasses individual, organisational, and societal perspectives of well-being; it emphasises the dynamic relationship with*

technology, which varies in time and is person-specific; it raises importance of transversal skills (e.g., digital literacy, appropriate and effective communication); and highlights two enablers of supporting well-being: safety through the development of digital competences (e.g., protecting against cyber-bullying to uphold psychological safety), and addressing the digital divide to ensure equal accessibility and opportunities for individuals in digital environments.

To understand well-being in digital education, we need to take into account the digital environment in which education takes place, which the 2022 Council conclusions on supporting well-being in digital education (2022) refer to as **digital education ecosystem (DEE)** having the following components: infrastructure and equipment, connectivity, digital education content, equipping teachers and educators with the knowledge and skills to integrate education technology⁶ (EdTech) into the pedagogical process, the development of digital skills and competences for learners, teachers and educators, and the creation of conditions conducive to interpersonal relationships within digital learning environments.

As for **well-being in digital education**, the focus is on the impact of the digital education ecosystem (DEE) on well-being, and no direct examples of integrated definitions or frameworks were found. Based on the definition proposed by the European Council Conclusions (2022) and on the results of the literature review and the expert exploratory interviews, the study suggests for the conceptualisation of WBDE: 1) reporting mental and emotional well-being under psychological well-being; 2) emphasising the holistic approach to well-being ('inter-connected') and time relevance ('development'); 3) emphasising learners, teachers and educators as the key actors ('agents'); 4) adding a notion on the whole-school approach and other actors involved; 5) putting an emphasis on the teaching and learning context, the socio-economic and cultural background, and the policy context; 6) explicitly stating both positive and negative well-being aspects in relation to digital education; 7) including 'digital divide' and 'safety' in the examples to capture all categories of well-being analysed in the study. As a result, the study proposes the following **conceptualisation of WBDE**:

Physical, cognitive, social, and psychological states and their interconnected development of learners and educators brought by their engagement in digital education. It considers wider teaching and learning, and socio-economic and cultural background and policy contexts as well as the role of other whole-school actors. Such well-being aims to maximise the opportunities (e.g., self-realisation, resilience) and minimise the risks (e.g., safety, digital divide related) brought by digital education.

Following this conceptualisation, the study has identified the following aspects of well-being:

- **Psychological well-being**, including emotional and mental well-being, e.g., stress, burnout, resilience, self-regulation of emotions, self-worth, purpose of belonging, anxiety, body image, etc.
- **Physical well-being**, including physiological aspects, activity levels/movement, sleep, blood pressure, vision, etc.

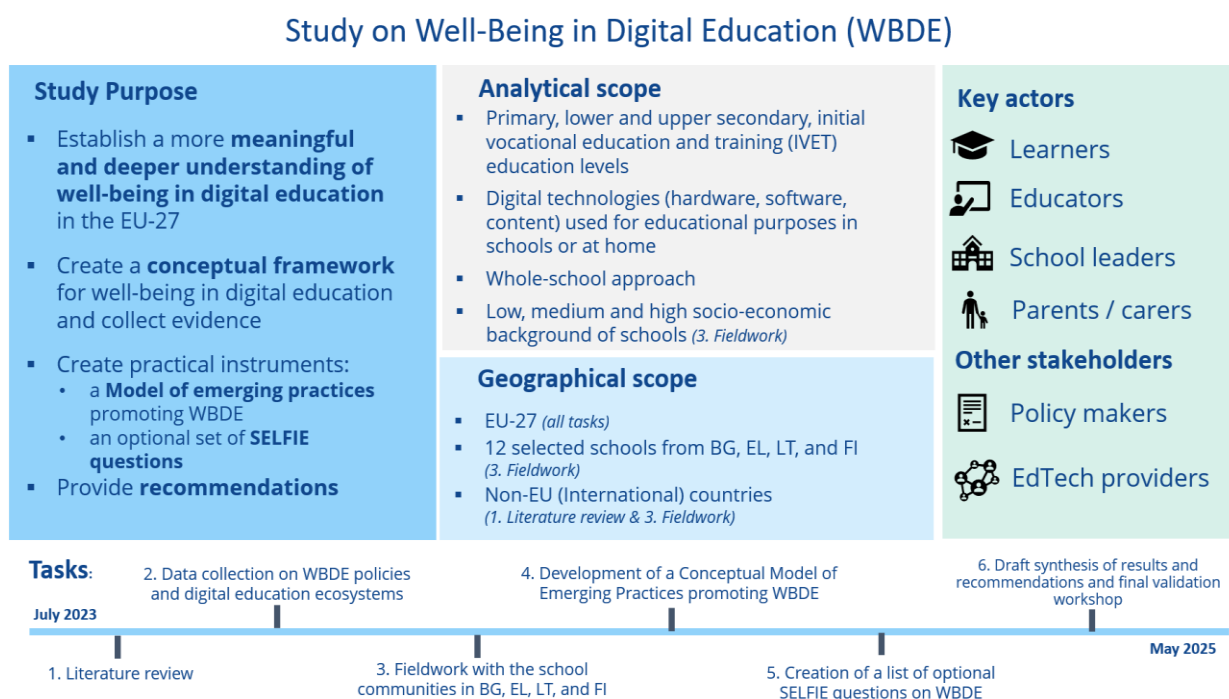
⁶ Education technology is a general term that refers to technology, including software and hardware, used to enhance teaching and learning processes (Wikipedia accessed 15/12/2025). However, according to the [European EdTech Alliance](#), across Europe, there is no single definition of "EdTech" (accessed on 15/12/2025).

- **Cognitive well-being**, including academic performance, engagement, self-control, problem-solving, motivation, digital competence, etc.
- **Social well-being**, including social inclusion, fulfilled relationships, fear of missing out, interaction with peers, parents, teachers and educators, digital stress, cyber-bullying, etc.
- **Safety**, including autonomy, privacy, exposure to harmful content, awareness of data protection, online fraud, and fake news.
- **Digital divide**, including social inclusion, equality, accessibility, access to technology, discrimination, aspects related to cultural and socio-economic background, etc.

1.2. Research objectives, methodology and approach

The study's **overall purpose** was to enhance the WBDE knowledge base across the EU by conceptualising WBDE, gathering evidence from 12 school communities in four Member States (MS), and identifying practices and policies to promote WBDE. Key outputs include the Model of Emerging Practices in promoting WBDE, an optional set of SELFIE questions, and evidence-based recommendations. The **analytical focus** spanned primary, secondary and IVET education levels. Emphasising a whole-school approach, the study engaged the educational community across the **EU-27**, with fieldwork in four MS: Bulgaria, Greece, Lithuania and Finland. Insights from international examples (e.g., UNICEF, OECD) also informed the findings. The study design is presented in Figure 1.

Figure 1. WBDE study overview



Source: JRC

The study consisted of the following steps:

1. Review of the Literature and Research Approach. A literature review on WBDE impacts on learners, teachers and educators was conducted, also examining the role of other school community

actors. A total of 106 publications (published between 2013 and 2023 in English) were analysed using sources such as Scopus ⁷, Google Scholar, and international organisations' reports. Search strings and additional keywords used to identify related academic and grey literature targeted specific aspects of well-being and technology. A review matrix was used to organise and analyse relevant records. The findings informed a working definition and a conceptual WBDE framework, which guided subsequent tasks.

2. Analysis of Policies in the EU-27 and Digital Education Ecosystems. A synthesis of WBDE-related policies and public initiatives in the EU-27 was prepared, through which we identified key challenges and opportunities related to Digital Education Ecosystems (DEE). National and regional policies were gathered through desk research and input from members of the European Commission Working Group on Digital Education: Learning, Teaching and Assessment (DELTA) collected via a survey. A synthesis of 51 policies was conducted in line with the study's WBDE definition. To explore DEEs, a literature review was conducted to examine their scope and identify elements and components related to the WBDE (e.g., school infrastructure, digital content, EdTech, and its management). Then, a focus group was held with ten EdTech representatives from companies of varying sizes operating across the EU. These companies had developed school-focused technologies, including digital platforms, extended reality (XR) solutions, health EdTech, and assistive technologies.

3. Fieldwork to identify impacts of Digital Technologies on the Well-being of the School Community. Utilising exploratory fieldwork with schools, we collected data to understand how digital education impacts well-being in teaching and learning (e.g., risks, opportunities) from the perspectives of learners, teachers, educators, parents, and school leaders. Four MS were chosen based on varying levels of digital education development: Finland (advanced), Lithuania (medium), and Bulgaria and Greece (low) ⁸. Twelve schools, representing diverse education levels and socio-economic backgrounds, were selected, engaging 212 participants (93 learners, 77 educators, 21 school leaders, and 21 parents). Data collection methods included in-person and online focus groups, digital diaries, co-design activities, qualitative surveys, and an online validation workshop. Data from digital diaries and self-control tools (DSCTs) ⁹ were coded using NVivo software, and

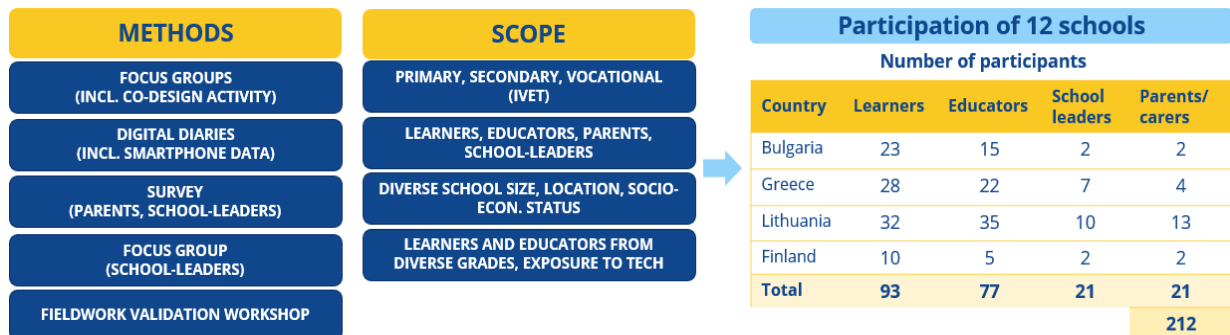
⁷ The main search string used in Scopus was: TITLE ((well-being OR wellbeing OR safety OR security OR health) AND (education OR learning OR school* OR teach* OR train* OR study) AND (digital OR computerised OR automated OR edtech OR technology)) AND PUBYEAR > 2012. For academic sources, only those with at least 10 citations were retained. Records were screened for relevance with study's research questions based on the following criteria: 1) Resource focus on EU-27, Europe or other global, international insights; 2) Resource focus on primary (ISCED 1), lower secondary (ISCED 2), upper secondary (ISCED 3), or initial VET (ISCED 2-3) education levels or a combination of these levels; 3) Resource is within the scope of the study; and 4) Full-text availability for analysis. As a result, in total 106 records (44 from grey literature and 62 academic articles) were incorporated in the review.

⁸ A top-down strategy by choosing a small, but sufficiently varied, sample of MSs was performed including different levels of digital skills and use of technology, as well as digital education. Seven different indicators were used, including data from sources such as: Eurostat; Digital Skills Indicator (DSI) 2.0; the 2nd Survey of Schools: ICT in Education; TALIS (OECD); Eurydice.

⁹ Educators and learners (except for primary learners) were voluntarily asked to use a digital self-control tool (DSCTs) on their personal smartphone for the duration of one week and upload daily screenshots on: 1) daily screen time; and 2) top used applications to their digital diaries in addition to qualitative insights. Android and iOS smartphones have a pre-installed DSCT such as [Google Digital Wellbeing](#) (Android), and [Apple Screen Time](#) (iOS), which were the primary applications used during fieldwork. DSCTs are tools typically in the form of external applications or browser extensions that allow to monitor their technology use, for example, through productivity dashboards, and define interventions, like self-imposed usage timers (e.g., to use Instagram no more than 30 minutes per day) (Lyngs et al., 2019; Monge Roffarello & De Russis, 2022).

screenshots of participants' screen time were analysed using Excel. All summaries followed reporting templates, underwent review, and were shared with participants for validation to ensure accuracy. An overview of the methodology and number of participants is provided in Figure 2 below.

Figure 2. Overview of the fieldwork methodology



Source: JRC

4. A Model of Emerging Practices in Promoting Well-being in Digital Education. For the development of the model, we identified and analysed practices in the EU-27 promoting WBDE and, based on these, develop a framework of key guiding principles. Emerging practices were defined as recent or ongoing initiatives, including those still evolving in development or impact. Sources used included a literature review, online project repositories, networks, and initiatives, whereby 23 practices were identified. From these 23, 11 were selected for in-depth analysis, based on balancing education levels, well-being categories, target actors, geographical distribution, and data comprehensiveness. Online interviews were conducted with representatives from eight practices, as three representatives did not respond. The findings informed a cross-practice overview and guided the creation of the Model of emerging WBDE practices.

5. Optional SELFIE questions on Well-being in Digital Education. This task aimed to create a set of optional SELFIE tool items through which the schools can self-reflect, elicit and formulate follow-up actions to improve WBDE. All relevant project findings were mapped against established SELFIE areas¹⁰, education levels and school actors. The dimensions of the WBDE conceptual framework were used to help link study findings with SELFIE areas. Findings for each area were then reviewed, grouped and/or prioritised to elicit the key points for reflection. Based on the SELFIE design and whole-school approach, a set of 23 optional questions on WBDE was developed for school leaders, teachers, educators and learners (see Annex 7).

6. Final validation workshop. A Stakeholders' consultation online workshop to validate the final project results (Model of Emerging Practices and recommendations to support well-being in digital education) was organised on 20 May 2025, with participation of 34 education stakeholders from 16 EU Member States, including education policy makers, teachers, educators, school leaders, parents, students, or their representatives and representatives from the EdTech sector, third sector

¹⁰ SELFIE areas are Leadership, Infrastructure, Collaboration and Networking, Pedagogies: Supports and Resources, Pedagogies: Implementation in the Classroom, Assessment Practices, Teacher Professional Development and Students' Digital Competences.

organisations and research actors. The stakeholders' comments and recommendations have been considered for the preparation of this final report.

Limitations of the study. The study covered a broad scope, including education levels, school actors, digital technologies, and well-being categories, but excluded continuing VET due to its distinct links with the labour market. The vast variety of digital technologies in schools limited in-depth analysis, and the engagement of parents and school leaders was less comprehensive than that of learners and educators. The literature review primarily analysed publications in English. Fieldwork with 12 schools, a small sample (212 participants), limits extrapolation of the results, and challenges in school selection meant not all socio-economic levels were covered in each of the four MS, and the conclusions cannot be generalised across Europe, given the limited selection of countries. Data relied on self-reports, with varying response rates for DSCTs, particularly low in Bulgaria. Based on publicly available information, the collected policies and practices provide examples rather than an exhaustive coverage, and with limited impact measurements on WBDE. Lastly, the study did not consider health and welfare professionals as stakeholders of the education community, although (mental) health professionals are considered as important experts to collaborate with.

1.3. EU policy context on well-being in digital education

Well-being in digital education is part of a broader European Commission effort to ensure well-being and a safer online world for children and young people. With the backdrop of the first principle of the European Pillar of Social Rights, namely, that everyone has the right to quality and inclusive education, **well-being in digital education (WBDE) is an emerging policy priority at the EU level**, attracting increasing policy attention.

The Council of the European Union's approval in November 2022 of the first [Council Conclusions on supporting well-being in digital education](#) set an important policy milestone, integrating past policy initiatives and providing new policy directions. Namely, the [Council Conclusions of December 2020 on digital education in Europe's knowledge societies](#) emphasise that digital education should consider the well-being of all actors involved in the learning process; the [Council Recommendation \(EU\) of 14 June 2021 establishing a European Child Guarantee](#), and the [Strategy for the Rights of Persons with Disabilities 2021-2030](#) underline the importance of improving digital skills and tackling all forms of digital divide; and the [Council Recommendations of 29 November 2021 on blended learning approaches for high-quality and inclusive primary and secondary education](#) underlines the importance of prioritising well-being (both physical and mental) and suggests including learner well-being and anti-bullying policies in school objectives, as well as increasing the focus on the well-being and the quality of the professional life of teachers and trainers, school leaders and other educational staff in order to mitigate stress and prevent burnout. The [Council Recommendation of 28 November 2022 on Pathways to School Success](#) stresses well-being at school and physical and mental health as key components of school success. Finally, the [European strategy of May 2022 for a Better Internet for Kids \(BIK\)](#) focuses on improving children's well-being in online environments. It centres its actions around the following three pillars: digital empowerment, active participation, and safe digital experiences. In cooperation with the EC co-funded [Safer Internet Centre Initiative](#), the BIK portal supports national Safer Internet Centres, which operate in 25 MS. Together, they provide helplines (that respond to online safety issues, e.g., exposure to inappropriate content), hotlines (that respond to illegal online issues e.g., child exploitation), and resources for educators, parents and young people.

The Conclusions from 2022 recognise that the **digital transformation brings new challenges and opportunities for learners and affects their cognitive, physical, social and emotional life**. Indeed, digital environments may bring some challenges within the digital education context, e.g., cyberbullying and/or isolation, disinformation and misinformation, hate speech, fake news, privacy breaches, online frauds, echo chambers, social comparisons impacting mental health and self-esteem, particularly in adolescence, and ‘fear of missing out’ which can negatively impact well-being. In addition, the **digital divide** poses a serious threat to well-being in digital education and training for both learners and educators, often reinforcing existing inequalities or creating new ones. In contrast, well-designed digital education ecosystems that are effective and inclusive can promote the development of learners’ well-being, by extending outreach to disadvantaged learners (with disabilities and/or special education needs, those unable to attend school or living in remote areas), facilitating teaching and learning for learners whose first language is different from the language of instruction, and supporting motivation. High-quality and inclusive education and training should enhance the opportunities opened by the digital transformation to support learners’ and educators’ well-being in digital learning environments. This should be systematically supported and fostered in all aspects of the digital education ecosystem.

The Conclusions acknowledge that **learners’ and educators’ well-being in the context of digital education and training can be supported** by: a) the acquisition of digital knowledge, skills and competences, and personal and social competences aiming at increasing learners’ resilience and empowerment, and which may help learners to use digital social networks with less risk of emotional or social harm and increase their awareness of the risks of excessive use of digital technologies; b) the design of teaching and learning approaches that improve the relevance and effectiveness of the education and training process as well as learners’ self-confidence in all learning environments; and, the design of digital infrastructure and digital technologies that are adaptable to education purposes and learners needs, accessible, safe and of quality. The use of digital technologies should adopt learner-centred approaches, including the promotion of learners’ autonomy; and c) considering that technological progress has changed the forms of communication and opened new opportunities for empowerment, self-expression and digital citizenship, including active participation in society via online tools.

Based on the above, the **Council invites MS** to strengthen learners’ and educators’ awareness of the need to balance on-screen and off-screen time effectively and, where possible, to support schools in developing appropriate time management as regards digital and face-to-face teaching and learning activities.

The [Digital Education Action Plan \(DEAP\) 2021-2027](#) presents a shared vision for achieving high-quality, accessible and inclusive digital education and addresses specific aspects of WBDE, including the digital divide, strengthening digital skills and competences, boosting infrastructural development and access, and supporting teachers and educators. Looking ahead, digital well-being is foreseen to be a key priority in the upcoming 2030 Roadmap on the future of digital education and skills foreseen to be adopted in 2026.

Furthermore, in the context of the Structured Dialogue and the EC proposals to the Council on digital education and skills, two relevant Council Recommendations were adopted by the Council of the European Union: the [Recommendation of 23 November 2023 on key enabling factors for the successful digital transition](#); and the [Recommendation of 23 November 2023 on improving the provision of digital skills and competences in education and training](#). The Council Recommendations include the provision of accessible and inclusive digital infrastructure, technologies and education content, offering equal opportunities to develop digital competences, encouraging digital training of

school actors (leaders, teachers and staff), taking comprehensive measures to address cybersecurity in all education and training institutions, and facilitating tailored support and expertise to enable education and training institutions to choose appropriate digital education solutions that address digital security, accessibility, data privacy and digital well-being in a strategic manner.

More recently, in May 2024 the European Commission's expert group on enhancing supportive learning environments for vulnerable learners and for promoting wellbeing and mental health at school published two sets of [Guidelines addressing \(a\) education policymakers and \(b\) school leaders, teachers and educators on well-being and mental health at school](#). The guidelines provide 11 recommendations to implement a whole-system and whole-school approach to wellbeing and mental health. The guidelines promote a children-rights centred approach, place a high focus on prevention and include universal measures for all learners, coupled with more targeted approaches for those in need, in a multidisciplinary and cross sectoral cooperation. These recommendations include **the promotion of wellbeing in the digital age** with concrete action points such as: build teachers capacity and confidence through comprehensive training programmes, integrate comprehensive digital literacy education into teaching and learning, create accessible learning environments to help students develop their digital competences, emphasise the use of technology as complementary tool to learning, set clear guidelines on the use and limitation of digital devices, promote the use of the resources on the [Better Internet for Kids \(BIK\)](#) portal and establish collaboration with the national [Safer Internet Centres](#), and encourage cooperation and dialogue with the EdTech sector to promote well-being features. Children from [Eurochild Children's Council](#) in cooperation with Learning for Wellbeing foundation adapted the above guidelines into a [child-friendly version](#). Children call for “learning how to be online in a safe and healthy way, that is why it is important to understand both the good and bad sides of being online”.

Supporting financial tools have contributed to promoting well-being in digital environments, with around EUR 55 million in Erasmus+ funding dedicated to online safety under the topic of “Digital safety and data protection” since 2021, with 789 projects funded.

In parallel to this work, the European Commission is active in complementary areas of the Education Ecosystem, contributing to well-being, namely by updating the [Guidelines for teachers and educators on tackling disinformation and promoting digital literacy through education and training](#) and preparing an [Action Plan against cyberbullying](#).

From a broader perspective, the European Commission has taken several steps to **protect the rights of social media users**. The General Data Protection Regulation (GDPR), enacted in 2018, regulates the collection of personal data through social media. The [Digital Services Act](#), enacted in 2022, in Article 34 imposes obligations on very large online platforms to identify, analyse, and assess systemic risks related to their algorithmic systems and harmful content, which may have serious negative consequences for people's physical and mental well-being, particularly minors. Article 35 requires these platforms to mitigate the risks identified by adapting their services. Article 28 calls for online protection of minors, requiring providers of online platforms accessible to minors to put in place appropriate and proportionate measures to ensure a high level of privacy, safety, and security of minors on their service. To support online platform providers in this task, the European Commission has published specific [Guidelines on measures to ensure a high level of privacy, safety and security for minors online, pursuant to Article 28\(4\) of Regulation \(EU\) 2022/2065](#). The EU guidelines support providers of online platforms and national authorities in implementing Article 28 of Regulation (EU) 2022/2065 by introducing measures to enhance minors' privacy, safety, and security. These include accounts with increased privacy, age assurance, and improved systems for recommendations and user support and reporting governance. Such steps

aim to reduce risks like unwanted contact and exposure to harmful content, aligning with the Union's goal of protecting minors.

In response to crises such as Covid-19, the war in Ukraine and, the climate crisis - that have all put a negative impact on the **mental health of children and young people**, the Council and the Representatives of the governments of the Member States in their [Conclusions of 30 November 2023 on a comprehensive approach to the mental health of young people in the European Union](#) invited the Member States and the Commission to promote a safer and healthier digital space for young people, in line with the [European Declaration on Digital Rights and Principles](#) of 2022. This includes encouraging awareness-raising and training in media and information literacy, and in the responsible use of social media with safeguards against risks such as cyberbullying, hate speech, grooming, and excessive screen time.

More recently, in May 2024, the [Council Conclusions on the future of EU digital policy to address the societal effects of digitalisation](#) stressed the importance of further reflecting on the societal risks stemming from digital services, and to consider the need for any measures, including non-legislative measures, to address issues related to addictive and deceptive designs.

Finally, the current [European Commission \(2024-2029\)'s priorities](#) include addressing the impact of social media on well-being, especially on young people, with the plan to launch an EU-wide inquiry on the broader impacts of social media on well-being; taking action on the addictive design of online services; and preparing an Action Plan against Cyber-bullying.

Among the Commission' priorities, the [Union of Skills](#) announced, in March 2025, the 2030 Roadmap on the future of digital education and skills, which will have a strong **AI dimension**. Contributing to these objectives, in May 2025 the Commission and the OECD launched a draft **AI literacy framework for primary and secondary education**, addressing the need for critical engagement and understanding of AI to ensure young people's online safety and digital well-being and foster resilience towards disinformation and misinformation. The framework will be finalised in 2026, feeding into the PISA 2029 Media and AI literacy innovative assessment component. Also, an update of the [Ethical Guidelines on the use of artificial intelligence and data in teaching and learning for educators](#) will be published in early 2026. Lastly, in late 2025, an update of the European Digital Competence Framework ([DigComp 3.0](#)) has been published to take into account new emerging technologies, including AI.

In recognition of the crucial role that digital education ecosystems play in promoting wellbeing, **this report** seeks to provide a more nuanced understanding of the impact of digital technologies on the wellbeing of the education community. Building on the [guidelines on well-being and mental health at school](#) and on existing evidence, it aims to further develop knowledge in the field by identifying existing policies and emerging practices in well-being in digital education, proposing a model of these practices and developing targeted recommendations for stakeholders at the European and national/regional levels. By doing so, this report aims to inform and support policymakers, educators, school leaders and other relevant stakeholders in their efforts to **foster a positive, supportive digital teaching and learning environment**, ultimately contributing to the well-being of students, teachers, and the broader education community.

2. Key findings

This chapter synthesises the key findings of the study. In [Section 2.1](#), we analyse WBDE policies and initiatives within the EU-27 Member States, providing an overview of activities at the member state level. The analysis of the focus of these policies can be translated into principles for the Model of Emerging Practices promoting WBDE. Additionally, this analysis can support information sharing among policy actors and serve as inspirational material for the development of WBDE policies.

To understand the role of digital technology in the well-being of learners and educators, [Section 2.2](#) examines the technologies used in school settings, informed by the literature review and fieldwork. It also explores the design elements and the role of EdTech providers in enhancing well-being. These findings help shape the role of EdTech providers in the Model of Emerging Practices Promoting WBDE and the related recommendations.

In [Section 2.3](#), we identify digital technology design elements that contribute to WBDE based on the findings from the literature review. These elements inform recommendations related to cooperation with EdTech providers and the procurement or selection of digital technologies and tools, ensuring they protect the security, privacy, and well-being of teachers and students. These findings can also aid EdTech providers in developing well-being-enhancing digital products.

In [Section 2.4](#), through the fieldwork, we analyse the type and level of impacts of the use of digital technologies on the six categories of learners' and educators' well-being. This knowledge highlights the need for action to address WBDE and has guided the design of the model and recommendations.

In [Section 2.5](#), we develop a Model of Emerging Practices promoting WBDE, based on the analysis of 23 emerging practices and additional project findings. The purpose of this model is to guide educational stakeholders in improving WBDE, with references to analysed emerging practices serving as inspirational examples.

All project findings have led to the development of detailed recommendations for implementing the Model, presented in [Section 2.6](#), which are addressed to different educational stakeholders.

2.1. WBDE policies and initiatives in the EU Member States

The analysis of WBDE policies across EU Member States aimed to inform the project about the status of development and the diversity of policies and initiatives already implemented across Member States. Policies were identified from September to December 2023 from publicly available information in English or other MS languages, as well as from information shared by the members of the European Commission [Working Group on Digital Education: Learning, Teaching and Assessment](#) (DELTA). A complementary analysis (in terms of methodology, participating MS and time of data collection) of policies across EU promoting well-being in the digital environment in schools has been carried out by European Schoolnet (2025).

In total, 51 WBDE policies and initiatives were identified across the 27 EU MS during September-December 2023 (see [Annex 2](#) for the full list of policies, which are referred to in this section as (*#policy nr in Annex 2, policy name, country*)). Most of the relevant policies analysed during the study were developed at the national rather than the regional or local level.

Achieving the well-being of the education community (learners, teachers, school leaders) requires the implementation of a broad set of actions, which may be tackled from different policy perspectives, such as improving digital education ecosystems by enhancing technology

infrastructure, providing access to digital tools, developing digital competencies, curriculum and assessment, and developing school strategies. The digital education strategies and policies analysed reflect this complexity, where some take a broad approach (e.g., #35, *Digital Education Strategy of Hungary, HU*; #36, *Public Education Strategy (2021-2030), HU*; #34, *Digital Luxembourg: Digital4Education, LU*; #51, *National Digitalisation Strategy for the School System, DE*), while others explicitly state the well-being of learners as a high-level objective of the policy or strategy.

Policies and initiatives have been analysed from the perspective of their contribution(s) to the different components of well-being:

Six main elements of the definition of well-being used in this study:

- **Psychological** well-being, including emotional and mental well-being.
- **Physical** well-being
- **Cognitive** well-being, including digital competence.
- **Social** well-being
- **Safety**
- **Digital divide**

Promoting safety: Policies aiming to ensure the safety of the school community often focus on digital safety and data protection. Initiatives include raising awareness among students, parents and teachers and develop skills about online safety (e.g. identifying misinformation and disinformation, dealing with cyberbullying and inappropriate/harmful content, and data privacy and safety) (#31, *Cypriot Safer Internet Centre, CY*; #14, *The Digital Traffic Club for Children and Young People, DK*; #16, *Secure Internet, DK*; #21, *Smartly on the Web, EE*; #23, *Webwise, IE*; #30, *Connected Generations, IT*; #32, *Latvian Internet Centre, LV*; #47, *Centre for a Safer Internet SAFESI, SI*; #49, *Evening school (for parents), SK*). Some actions are directed towards providing resources for learners, educators and parents on cyber prevention (#12, *Cyber Prevention Catalogue, CZ*; #44, *Online Safety Standards for Educational Institutions, PL*; #48, *National concept of child protection in the digital space, SK*), or creating a seal of approval for learning apps to provide guidance to education stakeholders in the selection of new products (#43, *8-Point Plan for Digital Learning, AT*).

Promoting social well-being: Some initiatives developed resources (curriculum, training material and lesson plans) for educators to raise awareness about the importance of developing social skills, self-confidence and interpersonal communication skills, social well-being, online safety, diversity and healthy relationships, and boundaries (#26, *iWell, GR, BG, CY IE, IT*) while others promote communication between learners, educators and parents (#43, *8-Point Plan for Digital Learning, AT*).

Promoting psychological well-being: A variety of initiatives include, for example, communication campaigns with recommendations for the healthy use of technology during school holidays addressed to school actors, including parents and youth associations (#45, *Holidays: a healthy techno place!, PT*); and a self-care mobile app with professional information targeted at children and adolescents (#8, *Beyond Smiles. How are you really?, BG*) with practical tips on how to manage and relieve stress, e.g., with meditation, and how to cope with anxiety and bad moods, including experience at schools. Another initiative consists of a platform that offers information for young people on a variety of topics (including bullying, problems at school and living alone) and provides support via online chat, telephone, and email (#7, *What What, BE*).

Another example aims to empower young people to become agents of change and help them understand the phenomenon of online hate (#37, *SELMA, MT*), including a toolkit with lesson plans and activities, a Massive Open Online Course (MOOC), and face-to-face training for school leaders, educators, and parents.

These initiatives are often accompanied by efforts to improve the school environment, making it more conducive to both learning and emotional well-being. For example, supporting educators in strengthening the resilience and mental well-being of children, through a welcoming community

where everyone's uniqueness and talents are developed through personalised learning paths (#3, *Warm School*, BE).

Supporting the development of digital competences: Several policies aim to help learners and educators understand the benefits and risks of digital technology in society and private life, fostering responsible participation and engagement. They promote digital competences for learners and educators (#42, *Digi.check*, AT; #10, *National Program: Information and Communication Technologies (ICT) in the Preschool and School Education System*, BG; #11, *Education for Tomorrow*, BG; #15, *Digital Growth Strategy 2025*, DK; #22, *Teacher's digital competence model*, EE; #24, *Digital Strategy for Schools to 2027*, IE; #39, *Continued Digitalisation Programme*, NL), or focus specifically on students' digital competences for learning (#2, *XR Action Plan*, BE; #18, *Teaching and learning in the digital world*, DE).

Various national initiatives aim to enhance learners' digital skills through extracurricular activities such as coding and computer modelling clubs (#11, *Education for Tomorrow*, BG).

Other initiatives support educators with integrating digital technology into pedagogy (#11, *Education for Tomorrow*, BG; #18, *Teaching and learning in the digital world*, DE; #41, *Acceleration plan: educational innovation with ICT*, NL). Parents are also targeted by policies, although less frequently, to support the development of their digital competences (#4, *CLBch@t*, BE; #23, *WebWise*, IE; #37, *SELMA*, MT).

Addressing the digital divide: Beyond the development of digital competences as a key priority to address the digital divide, most national digitalisation strategies focus on improving digital infrastructure at school or improving accessibility for vulnerable learners, as complementary actions to close the digital divide (#6, *All Digital*, BE-FI; #9, *Equal Access to School Education in Crisis Conditions*, BG; #20, *Digital Pact for Schools*, DE; #27, *Educate in Digital*, ES; #43, *8-Point Plan for Digital Learning*, AT; #46, *SMART-Edu*, RO). This is done, for example, by allocating devices and connectivity or providing technical support to vulnerable learners. Other policies aim at providing accessible digital educational resources (#19, *Open Educational Resources*, DE; #40, *Moving Education*, NL; #43, *8-Point Plan for Digital Learning*, AT), providing an online distance learning solution (#1, *Bednet*, BE), or incorporating design features that are more inclusive for learners with special educational needs and/ or disabilities (e.g., related to speech, vision, hearing impairments, or autism) (Lithuanian Register of Legal Acts, 2022). Other policies aim to reduce educational inequalities by ensuring equal access to quality digital education (#13, *Strategy for the Education Policy of the Czech Republic*, CZ).

Promoting physical well-being: Attention to the physical well-being is less prominent across the EU-27. Some initiatives use apps to support teachers in carrying out pedagogical activities by designing outdoor routes into learning walks (#50, *ArboEdu*, FI). Other initiatives have developed a specific curriculum covering potential physical risks of digital technology, such as reduction of physical activity, headaches, and eye fatigue, and teach approaches to manage them, for example, through the ergonomic set-up of digital devices, learning how to exercise and sleep properly and the importance of a healthy diet (#25, *the New Computer Science Curricula and new courses*, GR).

Fostering the role of digital technology in enhancing well-being: Digital technology plays a significant role in enhancing well-being in education by providing tools and resources that support learning and development. Policies often focus on integrating digital technology to enhance the educational experience while promoting well-being. Initiatives include the use of digital games or gamified apps, for example, to create real-life scenarios where learners make decisions related to addiction to computers, cyberbullying, and other harmful online situations (#26, *Mini Games in iWell*, GR, BG, CY IE, IT); or to provide knowledge on consequences of addiction to technology, on

online dangers, and on how to achieve a balanced use of digital technologies, to promote a safe and responsible gaming experiences for children in their leisure time (#5, *Level Up Flanders, BE-fl*). Others make use of the potential of digital platforms to provide support to young people (#7, *What What, BE*).

Fostering a whole-school approach: This involves the coordinated efforts of various actors within the school community (learners, educators, parents, school leaders and/or schools as organisations and digital technology providers) to enhance digital well-being. Some policies encourage teachers, parents, and students to create supportive learning environments (#14, *School patrols for digital traffic safety, DK*).

Other policy initiatives target improving communication channels between parents and the school to create a more connected and collaborative school environment by implementing a unified digital platform for parents, learners, and educators, for example, in Hungary (Eurydice, 2023c), Austria (Federal Ministry of the Republic of Austria, 2020), and Bulgaria (Ministry of Education and Science, n.d.).

School leaders and schools as organisations are usually targeted for developing school-wide policies to improve WBDE (Hungarian Educational Authority, n.d.). Policies may incorporate the development of guidelines for schools to manage digital technology use purposefully and limit smartphone use, aiming to enhance concentration and social interactions while minimising risks associated with the use of digital devices (#28, *Ban on cell phone use at school and colleges, FR*; #38, *School policy for smartphones, NL*).

The EdTech providers are less frequently targeted than other school actors. These are generally expected to contribute to the development or adaptation of EdTech solutions to promote well-being and to the overall development of the schools' digital infrastructure (#33, *EdTech Project, LT*). A specific focus includes their involvement in the definition of digital content standards (Lithuanian Register of Legal Acts, 2022) or of quality seals for data protection, in cooperation with the public sector, to promote the exclusive procurement/use of certified providers (#17, *DIRECTIONS, DE*).

Finally, we report on the limited available information regarding the effectiveness of the policies analysed as well as the key barriers encountered in their implementation and success factors. Evaluating the **effectiveness of WBDE policies** involves assessing the outcomes of various initiatives and actions. Information on the evaluation of the policies is scarce ¹¹, given that many of the policies are ongoing or have not been evaluated or published in a comprehensive, easy-to-find manner. The limited information collected shows that the policies that did have evaluation or monitoring information were mostly part of the Safer Internet Centre Initiatives. The evaluation or monitoring results, however, tend to focus on the "outputs" rather than on the outcomes or impacts, reporting, for example, as the number of people who have accessed the Hotlines or Helplines and various initiatives websites (Sikker Internet, n.d.). One of the policies that focused on improving cognitive well-being for learners, however, demonstrated that interactive classrooms increased orientation to learning, reduced boredom and led learners to improve their digital competence (#29, *E-Schools Project, HR*) (European Commission, 2020c).

¹¹ This fact has already been reported. is reported by the [Commission Staff Working Document accompanying the two Proposals for the Council Recommendations on digital education and training](#), which indicated that DEE monitoring systems are 'well-developed in only a small number of Member States, while many have fragmented or ad-hoc approach to monitoring'.

Barriers during the implementation of policies and initiatives reported include educators' scepticism to use ICT in education mainly due to lack of knowledge (#21, *Smartly on the Web, EE*), lack of parents' awareness of risks of online environments (Targals internetis, n.d.), and the ever-changing landscape of digital technology which requires constant updates to educational infrastructure, e.g., in Greece (Institute of Educational Policy, 2023). **Success factors** reported include the organisation of training and workshops in schools, awareness campaigns in the media, and children's' cartoons which worked best for raising awareness on the safety of digital technologies (#21, *Smartly on the Web, EE*). Other success factors included providing direct support to teachers on a school level (#25, *New Computer Science Curricula, GR*) and the acceptance of the policy by relevant stakeholders, including EdTech and the school community (#17, *DIRECTIONS, DE*).

2.2. Digital technologies used in school settings

This section examines the role of digital technology in WBDE, focusing on the technologies learners and educators use, the design elements that enhance well-being, and the role of EdTech providers.

The literature review identified a non-exhaustive list of categories of mainstream digital technologies widely used in schools, painting a broad picture of technology used in educational environments. A detailed list of the digital technologies used in schools can be found in [Annex 3](#), while a summary of these is provided below:

- **Digital platforms and virtual learning technologies** are used to access learning materials and support remote and hybrid learning, which became particularly prominent during the COVID-19 pandemic, expanding the school setting into environments such as the home (Willermark and Islind, 2022).
- **Assistive technologies** help learners with special educational needs (SEN) (CEDEFOP, 2019) and include tools such as Braille touchscreen tablets and text-to-speech software (UNESCO, 2023), as well as novel technologies such as educational robots (Newbutt et al., 2022).
- **Smartboards and projectors** can be used standalone as touchscreen computers or to assist in showcasing content from elsewhere (Passey, 2016).
- **Digital games** can be used in educational environments to encourage engagement, for example, by introducing point-scoring systems (Manzano León et al., 2021).
- **Social networks** can be used for socialisation (O'Neill, 2023) or education (Altinay et al., 2020), though it may be challenging to separate these uses.
- **Supporting hardware/unspecified digital technologies** are other technologies that may be used in school environments, such as desktop computers, laptops, tablets, and mobile phones (Gigantesco et al., 2019), or infrastructure aspects such as internet access (Vissenberg et al., 2022).
- **Emerging tools** such as AI, robots, extended reality tools, blockchain technology, drones, GPS tracking, and well-being enhancement tools, are also beginning to enter the educational landscape. However, their usage is not yet as widespread.

According to the fieldwork, educators and learners relied on a broad but common range of hardware tools similar to the list identified in the literature review. Smartboards were integral for showcasing videos, interactive quizzes, and other educational content, with primary schools also using them during breaks for games and drawing activities, thereby positively affecting

the cognitive and psychological well-being of both learners and educators. Communication technologies were essential for connections between educators, learners, and parents, and positively affected social well-being. **Advanced technologies, such as extended reality tools, were rarely mentioned** in digital diaries or focus groups.

Learners and educators widely used smartphones for both educational and leisure purposes. Based on the data collected through the digital diaries, educators who participated in the fieldwork used smartphones significantly less than learners, with learners spending almost three times as much time in and out of the classroom. Still, for educators, smartphones played key roles in communication and auxiliary social tasks such as photographing school events. During fieldwork, learners also reported using smartphones for educational purposes, such as in-class tasks, homework and education-related communication. At the same time, while educational and leisure smartphone uses are difficult to separate, learners frequently admitted using smartphones for leisure, including when they were not supposed to, such as during lessons. Usage varied depending on the education level, school, and national policies.

Both learners and educators emphasised the importance of practical, user-friendly, and safe digital technologies to support their needs. Some learners preferred platforms specifically designed for education over more business-oriented tools like Microsoft Teams, whose designs they found to be distracting and not always appropriate for learning. Similarly, educators valued platforms such as TAMO ¹² and Moodle ¹³ for their ability to handle multiple administrative and pedagogical tasks efficiently. That is in line with findings by Kuosmanen et al. (2018), who observed that tailored content can support educational needs particularly well. However, both groups identified shortcomings, including slow performance and an unappealing design of educational platforms. Safety was a shared priority, with learners particularly concerned about features that ensure secure interactions, achievable through measures such as encryption (Carmel, 2016), and about minimising risks, such as exposure to inappropriate content. Educators and learners frequently highlighted subscription-based restrictions as an obstacle. At times, educators had to pay for subscriptions out of personal funds, while learners could not use the tools they used at school at home for homework.

Digital technologies were also used in overlapping educational and leisure contexts, highlighting their multifaceted role in learners' lives. Social media platforms, including WhatsApp, Snapchat, and TikTok, were leveraged for both leisure and access to educational resources, reflecting the complex dynamics of technology use, as learners navigate between its entertainment and educational functions.

¹² TAMO is a school management system and planner (<https://dienynas.tamo.lt>) directed towards Lithuanian educational facilities. TAMO helps maintain real time organisation of the school. It provides teaching administration tools for schools such as lesson scheduling, gradebook, homework assignments, attendance tracking, data storage, calendar, analytics. It is an open platform which also has integrations both with other widely used software providers (Microsoft, Google, digital content platforms) and with physical infrastructure of the school (canteen, library, entry gates, lockers, payments). Source: <https://www.linkedin.com/company/tavomokykla>, accessed on 28 October 2025.

¹³ Moodle is a free and open-source Learning Management System (LMS) designed to help educators create effective online courses. It serves as an online learning platform where users can access course materials, submit assignments and participate in online classes.

Recently, Generative AI tools like ChatGPT are increasingly integrated into learners' workflows, particularly in upper-secondary and IVET contexts, although their usage often depended on educator and school policies. Learners reported both positive and negative experiences with generative AI, finding it fascinating and helpful for summarising information, although some raised concerns about inaccuracies. On the other hand, educators often reported that AI tools were confusing, with many having never tried them, even though learners were using them. They expressed a similar mistrust towards the accuracy of the information they provided. One IVET school implemented guidelines to regulate AI use, promoting its use for specific tasks, such as research, while restricting unethical practices like copying content directly. Nonetheless, some reports of AI misuse emerged, such as drafting essays without completing the learning process. These examples underscore the need for frameworks and policies to guide the use of technology in education.

EdTech providers played a significant role in supporting digital technology use in schools. However, cooperation levels varied as reported by EU-27 MS. Lithuanian schools received annual product proposals from EdTech providers, and Finnish schools collaborated with providers to develop tailored platforms, such as Workseed, for competence-based learning in technical vocational education and training (VET). EdTech focus group findings were in line with the literature review, indicating that while bottom-up procurement approaches can allow schools and educators greater autonomy, the absence of standardised procedures for evaluating EdTech can place excessive responsibility on them, resulting in increased costs and implementation difficulties (Hillman, 2022). This was also highlighted by some school leaders, who expressed concerns about the slow pace of communication with EdTech providers and the uneven level of support. At the same time, top-down procurement controlled by, for example, local authorities, may suffer from a lack of knowledge on the needs of educators in different schools, while hybrid approaches have increased administrative complexity, which can result in delays and other inefficiencies.

Introducing an environment for comprehensive EdTech product experimentation and testing (also known as a testbed ecosystem) with the involvement of end-users, appropriate authorities, and researchers to ensure evidence-based development and implementation (European EdTech Alliance, 2023) could offer the opportunity to engage different school actors at various EdTech development stages, easing the quality control processes.

2.3. Digital technology design elements and WBDE

Positive computing, a multidisciplinary research area, focuses on the design and development of technologies to enhance psychological well-being and support human flourishing (Calvo & Peters, 2014). This approach directs focus beyond preventative design to avoid digital risks or to increase productivity (Calvo & Peters, 2014) to embedding positive psychology into technologies to optimise psychological functioning and contribute to a more positive and fulfilling human experience (Burr et al., 2020). Calvo and Peters (2014) propose intrapersonal, interpersonal, and extra personal well-being factors for positive computing: positive emotions, motivation and engagement, self-awareness, mindfulness, resilience, gratitude, empathy, compassion, and altruism. Designing for well-being would then involve focusing on one or more of its determinant factors and drawing on one or more theories of well-being and/ or significant evidence to identify suitable strategies. For instance, online cognitive behavioural therapy (CBT), technology-mediated reflection, the use of intrinsic and extrinsic rewards, and gratitude journals are strategies that have been tested and shown to support well-being. Positive computing may address well-being through preventive design (avoiding and/or mitigating risks of harm), active design (integrating functionalities that support

well-being into digital technologies), and/or dedicated design (specifically designing digital technology to promote well-being) (Calvo & Peters, 2014).

Furthermore, given the influence positive computing has on users' well-being, it is relevant to analyse the opportunities for optimising user experience and enhancing well-being, and it also provides a framework for analysing the well-being impacts of digital technologies on educators and learners, analysed in the next [Section 2.4](#). Guided by the approaches of positive computing, the following are design elements relevant to the well-being of learners and/or educators identified in the literature review and categorised according to seven main categories:

- 1. Data privacy** design elements, including ethical and transparent approaches, are emphasised in the literature. The importance of intangible aspects, such as encryption (Carmel, 2016) and hyper-nudges (Yeung, 2017), is highlighted, due to their implications for well-being, ranging from safeguarding digital footprints to mitigating the risk of compromising learners' sense of autonomy and self-identity through data commodification (Gard and Lupton, 2016). The implications also extend to parents, who are often required to make informed decisions about their child's use of digital technology in and out of school (Carmel, 2016).
- 2. Social interactions** between learners and educators in the digital education ecosystem also play a pivotal role in well-being. The design elements of social interactions between learners and educators, including interactive features (Schuchter, 2021) and private forums for discreet support-seeking (Willermark and Isind, 2022), can enhance social cohesion and well-being.
- 3. Communication with/between parents and educators** is also an important design feature. Automated personalised reports (Pluim and Gard, 2018) and school-home digital communication (Kuusimäki et al., 2019) enable educators and parents to share learner progress, challenges, and achievements to support the learner's development collaboratively.
- 4. Empowerment, self-expression, and digital citizenship** aspects of design are noted to influence the well-being of learners and/or educators. Relevant design elements include user-friendly authoring tools that empower learners and educators to create and edit learning materials (Pellas et al., 2019). Tailored content (Kuosmanen et al., 2018), gamification (Chacko et al., 2016), and study break prompts (Hietajärvi et al., 2022) can support autonomous motivation and self-directedness. Digital technologies designed to promote digital citizenship emphasise ethical digital behaviour and empower users with the tools to engage responsibly and positively in both digital and physical environments (OECD, 2019a).
- 5. Social support for addressing digital risks** may be enhanced through design elements, such as offering access to digital support groups (Chacko et al., 2016), which allow users to engage with social support and seek information. It is important to note the synergy that exists between this design category and the social interactions aspects and the opportunities for socio-emotional learning that empower users to identify, mitigate, and respond to digital risks through social forums (O'Neill, 2023).
- 6. Accessibility design** elements include more general considerations, such as the availability of software/hardware to ensure equal access opportunities (CEDEFOP, 2019; UNESCO, 2023; Zemko et al., 2016) and assistive features to support users with special

educational needs (Newbutt et al., 2022; Passey, 2016; UNESCO, 2023). Design elements noted by the literature include improving visual accessibility using digital technologies and removing physical barriers to learner interaction with digital technologies (Passey, 2016), personalising learning environments (Di Battista et al., 2020; Newbutt et al., 2022), embedding assistive features into digital platforms/devices (UNESCO, 2023), and the choice of interface language (CEDEFOP, 2019; Richardson and Milovidov, 2019).

- 7. Learner support** design features encompass features that support learners' knowledge, skills and attitudes by facilitating subject-specific support and helping learners develop a range of skills (e.g., subject-specific, digital, and critical thinking). Moreover, design features can improve learning experiences by enhancing learners' access to resources and educators' assessment and feedback, and by creating opportunities for learners to engage in a variety of learning practices (e.g. active learning, personalised learning, and self-directed learning) (Timotheou et al., 2023). Examples of learner support include enabling learners to experience practical training elements in virtual settings (Pedone, 2021), careful consideration of user-friendly design of the delivery interface (OECD, 2021), interoperability (Passey, 2016; Schuchter, 2021) and the integration of digital technologies with the physical environment (Fawns, 2022; Zemko et al., 2016).

Another design element that emerged from the literature was the novelty factor of digital technology design elements. This was however reported to both help and hinder educators, with the novelty increasing engagement among some learners (Pellas et al., 2019) and distracting others (Wallace et al., 2022).

A summary table of these design categories and descriptions, along with information on the education level and socio-economic or cultural background relevant to each design category, can be found in [Annex 4](#).

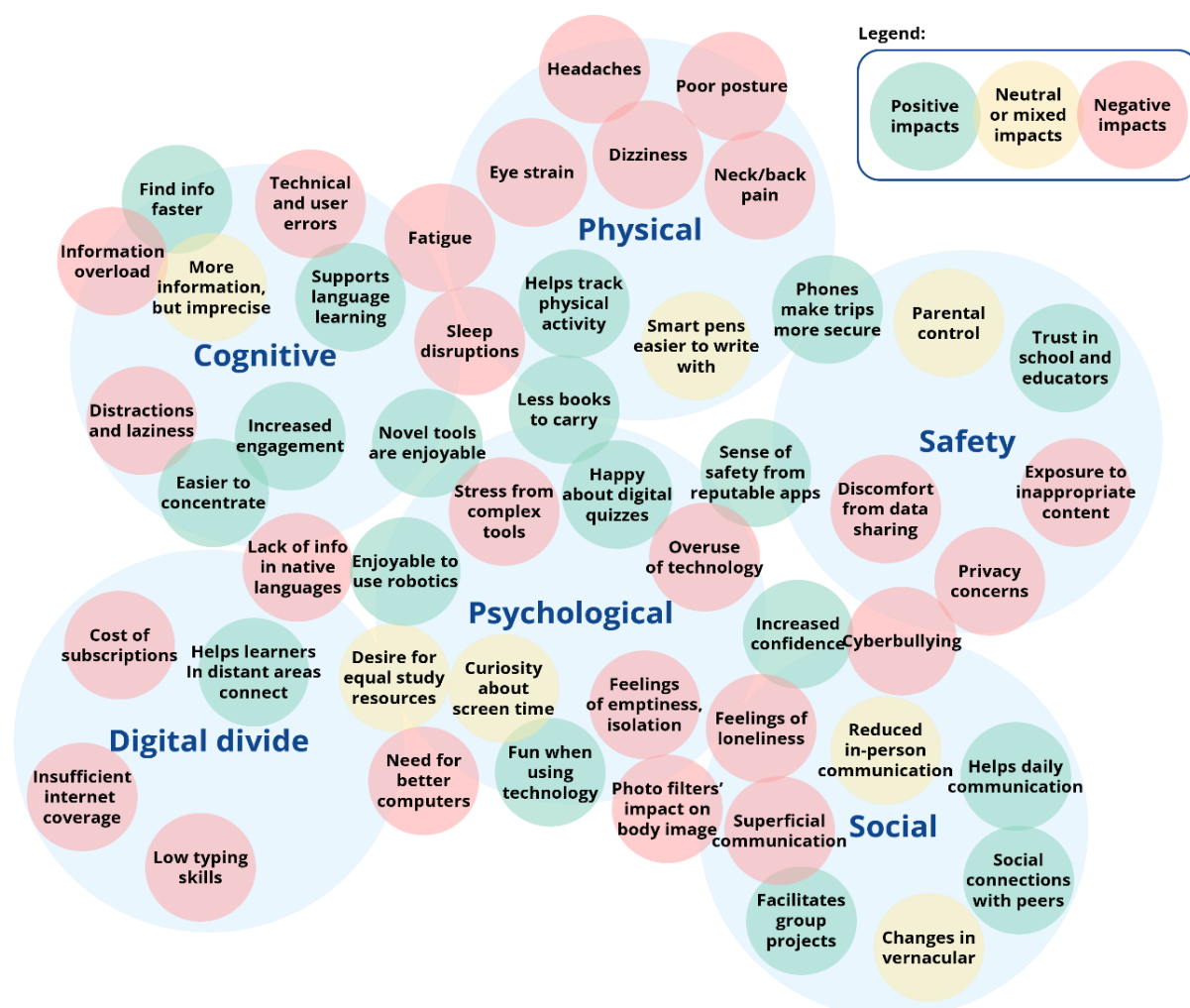
2.4. Impact of digital technologies on the well-being of the education community

This section presents in detail the impact of digital technologies across physical, cognitive, social, and psychological well-being, as well as safety and the digital divide on learners and educators' well-being.

2.4.1. Impact on learners' well-being

This sub-section explores the impacts of digital technologies on learners' physical, cognitive, social, and psychological well-being, as well as safety and the digital divide, based on literature findings and fieldwork involving 93 learners from four MS.

Figure 3. Visual summary of the impact of the use of digital technology on learners' well-being



Note: The visual was produced by aggregating responses from educators across all learning levels (ISCED 1-3) and MS participating in the fieldwork and should be used for illustrative purposes only.

Source: JRC

Most learners reported negative impacts of technology use on their physical well-being

(see Figure 3 for details). These impacts were varied, with the most mentioned impacts being eye strain and general fatigue. Headaches, neck or back pain, and disrupted sleep patterns were also frequently cited. These findings align with academic research indicating the disruptive impact of technology on sleep (Gottschalk, 2019; Lissak, 2018). The negative impacts were associated with prolonged technology use. Several younger learners expressed interest in building up better digital habits, including discipline around screen time, with older learners in upper secondary and IVET schools often reported employing strategies such as turning off notifications, using different light modes, and avoiding excessive video game time. At the same time, some learners noted positive outcomes from using personal tracking devices, such as smartwatches, which supported physical activity and nutrition aligning with previous academic findings (Pluim & Gard, 2018).

Learners reported convenience and utility of technology in their learning process supporting their cognitive well-being but faced increased distractions and difficulties in finding and using relevant information.

In line with literature (Benavides-Varela et al., 2020; Manzano León et al., 2021; Wallace et al., 2022), learners reported the convenience and utility of

technology in supporting the learning process, e.g. for learning foreign languages, or the easy access to multiple information sources for preparing presentations and increase their engagement. However, they frequently mentioned the increased distractions feeling tempted to check unrelated content (e.g. advertisements) or messaging apps. Across all education levels, learners reported difficulties in using the information they found on their own, commonly due to the overwhelming amount of available information, often resulting in stress or frustration, and found educators' explanations more effective.

Learners often stated that technology helped coordination and communication with peers in school and at home with positive impacts on their social well-being, but noted stress linked to the nature of instant messages communication and bullying. Learners often reported the use of technology as helpful with tasks or homework that required coordination with peers both in school and at home, including cases when learners were absent, and useful in improving some learners' self-confidence and social skills, in line with literature (Gottschalk, 2019; Passey, 2016; Schuchter, 2021). However, digital technologies also often acted as a social stressor as instant messages created pressure for immediate responses, learners also felt that communication was superficial and even led to struggles in in-person communication. Cyberbullying was another issue, with learners sharing that technology supported in-person bullying at school, and at times enabled them to say things they would not say in person, leading to additional conflicts.

Psychological well-being impacts reported by learners were closely connected with impacts of other well-being categories. Most often, learners reported positive feelings as technology aided in educational tasks, and some IVET learners often felt empowered while using digital technologies, as they felt they were performing tasks useful for their future careers. They reported negative feelings of technology unhelpfulness and impeding learning processes, and frustration linked to glitches and connectivity issues, especially during exam periods. Some learners also reported issues of digital safety as they encountered adult content in class group chats or on their own social media feeds, leaving them feeling traumatised.

Although learners primarily reported feeling safe using technology for school purposes, concerns about issues of privacy, exposure to inappropriate content, and distraction were raised. Most secondary and IVET learners reported a general sense of safety when using trusted digital tools, citing school-endorsed platforms and familiar technologies as reassuring. The use of smartphones during commutes was cited as increasing the feeling of safety by some lower secondary learners. However, concerns arose regarding privacy and data-sharing both with lesser-known platforms and websites, which could risk data breaches (Chanenson et al., 2023), as well as with reputable software such as Microsoft Teams, whose data-sharing policies were criticised by IVET learners. In some cases, inappropriate content even infiltrated school communication channels. Reports from UNESCO (2024) suggested that algorithm-driven, image-based content can amplify safety risks, especially for girls, by promoting harmful stereotypes and unrealistic standards. Furthermore, constant notifications from messaging apps presented an additional safety concern by distracting learners and hindering autonomous learning practices (CEDEFOP, 2019; Vanden Abeele, 2021).

The digital divide in educational settings emerged as a multifaceted issue. Diverse issues related to limited digital access at schools were reported. For example, infrastructural limitations such as unreliable internet connections were reported at some schools. Some learners had limited access to computers, due to high hardware costs, which forced them to use smartphones for performance of certain tasks, which was seen as impractical. Software costs were also reported as a reason or losing access to a valued educational platform due to increased fees.

Limited digital access at home generated different types of exclusion. The use of digital platforms for school communication excluded those without the internet or digital devices at home, and although social media helped learners in distant or rural areas maintain connections, those without social media access felt excluded from school activities.

Finally, disparities in digital skills both of learners and educators were reported as a concern. Some primary learners cited difficulties with typing, preferring traditional pen-and-paper methods. On the other hand, secondary learners noted the limited digital skills among educators, as some educators feel less comfortable at integrating digital technologies, creating further challenges in achieving equal engagement across learner groups.

2.4.2. Impact on educators' well-being

This sub-section examines the impacts of digital technologies on the well-being of educators. These findings illustrate the opportunities and challenges educators face in integrating technology into their professional and personal lives, based on literature findings and fieldwork involving 77 educators from four MS.

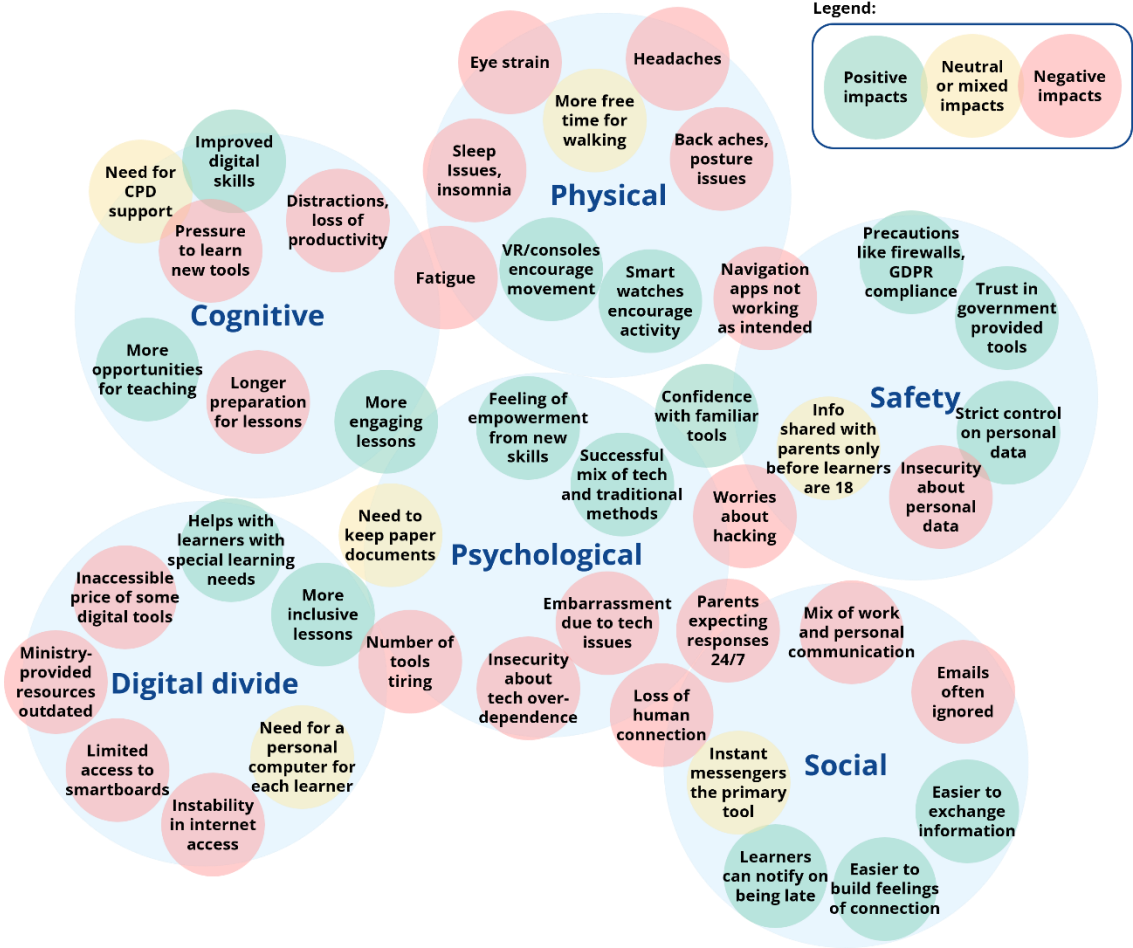
Educators primarily reported negative impacts of the use digital technologies on their physical well-being (see Figure 4 for details). Excessive screen time was cited as a primary source of physical strain, together with other factors, such as increased workload generated by technology use and weekend work, and the related generated stress, leading to eye fatigue, dry eyes, and visual strain. Educators frequently described posture-related discomfort, including back and neck pain, which was exacerbated when working from home due to lack of movement. Some educators reported that the demands of constant digital communication led to mental and physical exhaustion, with some experiencing sleep disturbances. Nonetheless, some educators identified strategies to mitigate these impacts, including using adjustable chairs and smartwatches to track activity, setting limits on their digital technology use, and balancing screen time with movement during classes.

Educators widely appreciate the use of technology to enhance their teaching increasing their cognitive well-being, but this has also notably increased preparation time. Digital tools allowed educators to enrich lessons with interactive elements that align with their teaching goals, making content more accessible and engaging for learners and leading to positive feelings for educators themselves. Regular use of these tools also improved educators' digital competences over time. However, educators also reported that the increased availability of online resources could lengthen lesson preparation times, with added pressures to research and adapt new tools, limiting the time available for the rest of activities. Technology also acted as a distraction, with some educators finding it difficult to control their personal use of entertainment apps or social media.

Adopting digital tools requires availability of relevant training on digital competences addressed to educators (under Continuous Professional Development (CPD)). While digital competences develop with regular use among younger educators, several older educators reported experiencing more difficulties with basic tasks like saving files, often relying on support from younger colleagues. Very few identified resources or training targeting digital competences of educators directly. Educators expressed a strong need for relevant continuous training and support providing practical, immediately applicable skills, especially in contexts of limited time. In some schools, a peer support system was established to complement CPD, often driven by information technology (IT) educators or departments. Furthermore, some IVET educators noted that learners'

advanced technology skills could occasionally undermine their authority or self-confidence, adding to the challenges of integrating new tools.

Figure 4. Visual summary of the impact of the use of digital technology on educators’ well-being



Note: The visual was produced by aggregating responses from educators across all learning levels (ISCED 1-3) and MS participating in the fieldwork and should be used for illustrative purposes only.

Source: JRC

Digital technologies have strengthened connections with learners, colleagues and parents, but the quality of human contact has decreased, and the high and constant message flow led to fatigue and anxiety affecting educators' social well-being. Digital communication tools streamlined information sharing with learners, colleague educators, and parents, strengthening connections, for example sharing extracurricular achievements, with learners and parents, or facilitating a sense of community among teacher colleagues. However, some educators believed that the quality of human contact was decreased compared to in-person encounters; the constant message flow made it difficult to separate work from personal life, leading to fatigue and anxiety, including sleep disturbance; parents overstepping time boundaries, invaded their personal space; and instant messengers like WhatsApp and Microsoft Teams created pressure for quick responses, which some educators found stressful. Countermeasures taken by some educators included limiting contact with learners and parents to in-person communication.

While technology use positively impacted their psychological well-being linked to increased creativity, access to information and engaging lessons, it also increased

workload leading to exhaustion. Digital tools allowed educators to deliver more creative and engaging lessons and provided easy access to new information, which simplified lesson preparation. Familiarity with digital technologies boosted confidence, giving educators a sense of empowerment and adaptability, especially as many had become proficient in new tools during the COVID-19 pandemic. However, some educators found themselves in a context where enhanced task performance led to more tasks being assigned, creating exhaustion and requiring working during personal time. Additionally, redundant administrative processes, such as the need to keep both digital and paper records, contributed to dissatisfaction and a sense of inefficiency.

While most educators trusted school-administered technology and safety measures, some voiced concerns about privacy risks and learners' safety. Many educators felt secure using school-administered technology, particularly when managed by educational authorities, such as the Ministry of Education. Additional safety measures were also in place such as firewalls, regular data backups, and parental consent protocols to safeguard personal information. However, some educators questioned whether personal versions of software and social media met the same safety standards as institutional accounts, and others felt insecure about their data privacy, passwords, and learners' access to unfamiliar online resources.

Technology was helpful in engaging learners with learning disabilities or special learning needs promoting inclusion, however, it showed limitations. Educators often perceived digital technology as beneficial for engaging learners, particularly those with disabilities or special learning needs, as it was helpful in attracting their attention. In addition, by adapting lessons to meet individual needs, educators could make the classroom more inclusive. However, full personalisation of lessons remained challenging, as it required each learner to have a personal device, which was not always feasible. In addition, while technology was useful in conveying information for learners with learning difficulties, it was of limited to no help with tasks such as developing fine motor skills, particularly important for primary schools.

Limited or lack of access to essential digital tools led to negative experiences. Limited access to essential tools was seen as the most negative part of the digital divide. Smartboards were seen as very helpful for presenting visual content and making lessons more engaging, but not all educators had access to those. Subscription-based digital tools were often only possible to use within the classroom, limiting their usability, as educators could not assign homework based on them. In some cases, educators or parents paid out of pocket money for necessary subscriptions to ensure lesson quality. Inconsistent internet connectivity in schools often disrupted lessons and added stress, with some educators describing such experiences as frustrating and embarrassing.

Overall, the results highlight the dual nature of digital technologies, providing both opportunities and challenges for well-being in the educational community. They underscore the need for a balanced, mindful integration of digital tools to maximise benefits while mitigating adverse effects, and the need to ensure sufficient digital competences among teachers and learners and equal access to quality infrastructure.

2.5. A Model of Emerging Practices promoting WBDE

2.5.1. Model overview

The Model of Emerging Practices for Promoting WBDE (hereinafter - Model) offers a structured framework that helps to guide the design, implementation, and evaluation of WBDE practices by providing key emerging guiding principles. By synthesising key insights identified from emerging practices investigated, study research results and stakeholder input, it aims to support the holistic development of future practices by providing them with a structured reference. Importantly, the Model is intended to be a flexible guide rather than a prescriptive set of rules. Users are encouraged to adapt its principles to the specific contexts of their practices. This section provides a visual representation (Figure 5) and outlines the Model's structure. In the next [Section 2.5.2](#), different stakeholders will find guidance on how to use the Model in their specific roles and contexts.

The Model is structured around seven core dimensions, each representing a key element for developing, implementing, or evaluating WBDE practices both in terms of addressing immediate needs and ensuring long-term adaptability:

- **Fostering a whole-school approach:** this dimension emphasises the importance of involving all education community actors and the shared responsibility of learners, teachers, educators, parents, school leaders, and external partners in building a unified approach to WBDE. By fostering collaboration across these groups, practices can reinforce well-being throughout the community, ensuring that it becomes a holistic consideration embedded in the school culture.
- **Empowering the school community actors:** this core dimension focuses on supporting a whole-school approach to Well-being in Digital Education (WBDE) through awareness-raising actions and accessible and tailored training for all stakeholders (leaders, teachers, educators, staff, parents, learners). A sufficient level of some competences needs to be ensured for all actors (digital, critical thinking and socio-emotional competences, digital risks and opportunities) as well as specific tailored training, e.g., addressing strategies for school leaders, inclusion aspects for teachers, responsible online behaviour for learners, and tools for internet safety and screen time dialogue for parents. Innovative training approaches are needed to maximise relevance and adaptability, access to training and equity.
- **Pedagogical approaches enhancing WBDE:** this core dimension highlights how specific pedagogical approaches can be applied to ensure technology use aligns with learners' holistic well-being, balancing cognitive, socio-emotional, and physical needs. Effective approaches foster critical agency, inclusive collaboration, and healthy habits helping learners build digital literacy, ethical judgment, and resilience.
- **Schools' digital readiness and inclusion:** Digital readiness, both on competences and infrastructure is essential for well-being in education. This core dimension includes guiding principles for ensuring a robust and inclusive digital strategy and policies supporting WBDE and addressing disparities in skills and access. It also includes principles for purposeful integration of technology in learning environments, and partnerships with industry to ensure tools meet evolving needs and incorporate design elements that enhance well-being.
- **Addressing WBDE implementation barriers:** this core dimension addresses the barriers and challenges identified in implementing WBDE policies and practices, as highlighted by representatives from eight emerging practices and stakeholders at the validation workshop. While the Model's various elements help tackle these obstacles, raising awareness on stakeholders'

challenges supports direct focus towards them, thereby maximising the impact of WBDE-enhancing policies and practices.

- **Promoting enablers for WBDE implementation:** This core dimension addresses factors and related guiding principles that can facilitate the successful implementation of WBDE practices, drawing on lessons learnt from the collected practices' barriers and enablers and from insights from participating experts in the validation workshop. By leveraging appropriate enablers, WBDE practices are better equipped for effective implementation and long-term sustainability.
- **Opportunities for building sustainable WBDE:** This core dimension encompasses guiding principles on strategic opportunities designed to facilitate structural support, ensuring the effective and sustainable implementation of well-being practices and activities.

The Model is adaptable for teachers, educators, leaders, policymakers, researchers, and EdTech providers, encouraging shared responsibility across contexts like policy, schools, and homes. It serves as a flexible guide rather than rigid rules, allowing users to tailor it to their needs.

As the Model is built with the goal of assisting a variety of relevant actors, the most relevant ones are highlighted in its visual representation, for each of its core dimensions. The list of identified relevant actors is provided below. However, it is non-exhaustive, and each core dimension might be relevant for non-highlighted actors depending on the goals and context of the practice.

2.5.2. Application of the Model

In the application of the Model, **all its dimensions should be considered and used as a point of reflection** (e.g., does the practice address this aspect, or has it been considered at all?).

Guidance for applying the Model to the school community (teachers, educators and school leaders), policy makers, EdTech providers, researchers and civil society groups is outlined below. It is important to note that while this is the first attempt to define a model of well-being in digital education, further research is advisable to refine and validate this model.

A core aspect of the Model is **its adaptability and the intention for users to adapt its principles to the specific contexts of their practices**. Through this, it supports the capacity of WBDE practices to remain relevant in a changing digital landscape and maximise their impacts. By incorporating forward-looking principles such as emerging digital competence topics, the Model allows WBDE practices to evolve alongside technological and societal shifts. This adaptability enables WBDE practices to be regularly reassessed and updated, and the Model encourages a continuous improvement mindset by supporting reflective evaluation. Through ongoing assessment and adjustment, WBDE practices can better respond to future challenges and opportunities, ensuring their relevance over time.

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Figure 5. Model of Emerging Practices promoting WBDE



Source: JRC


Who can use the Model and how?



The **school community** (school leaders and teachers and educators) can use the Model to integrate well-being in digital education, namely in their pedagogical approaches and school-level strategy and policies, by using it to:

- **Reflect on existing school-level and/or classroom practices**, and on the development of new practices, ensuring that all dimensions of well-being are supported effectively. At the same time, efforts to integrate this model should be part of the existing strategies and activities in the school addressing both well-being and digital education, not added on top these.

- **Inspire school-level policies and curricula, inter-curricula and/or extracurricular activities.** For example, integrating movement breaks into lessons to support physical well-being, or introducing guidelines for balanced digital and offline time.
- **Inspire pedagogical approaches.** Teachers and educators can consider which approach aligns best with their specific context, such as access to resources or the unique needs of their learners and adapt these approaches accordingly to maximise their effectiveness. For example, in a context where group work or peer learning is being implemented, an educator might reflect on resource availability, such as the number of devices accessible to learners. If resources are limited, the educator could adopt a rotational model where small groups take turns using digital tools, ensuring equitable access.
- **Guide collaboration between different school community actors and highlight areas for action.** For example, for teachers and educators, this might involve reflecting on the interactive resources they currently use with learners, their advantages and disadvantages, and future opportunities. For school leaders, this may involve reflecting on communication with parents and how this can be strengthened in existing or future school practices.

 **Policy makers** can use the Model to shape and evaluate practices that effectively embed WBDE principles. Applications of the model for policy makers may include using it to:

- **Reflect on different dimensions of WBDE in policies,** helping policy makers shape more effective and supportive school communities, including through curricula, which puts a holistic understanding well-being at its centre.
- **Consider different aspects of policies' influence on WBDE,** including interactions between different school actors and different categories of well-being, and how collaboration with different school actors could promote WBDE and/or implement WBDE practices.
- **Check that certain elements have been considered in the development of WBDE-promoting practices.** Guiding principles can be used as a checklist against practices to ensure all elements have been considered in the development of the practice and, if not, explore if they could be beneficial.
- **Explore new areas for WBDE-promoting practices to address.** Policy makers can integrate forward-thinking principles into long-term strategies. For example, evaluating whether schools have appropriate and sufficient reflective tools for ongoing self-assessment in digital education, and developing or enhancing these tools as needed. Additionally, ensuring these tools are widely disseminated would allow all schools to benefit.



EdTech providers¹⁴ can use the Model during the planning, design, and implementation of EdTech products. Applications of the model for EdTech providers may include using it to:

- **Ensure that user-centred approaches and well-being considerations are integrated into the design of EdTech products from the outset, optimising their impact.** The emerging guiding principles can help EdTech providers design digital technologies that not only mitigate risks to well-being but also actively promote it, helping EdTech products remain safe, relevant and effective. For example, the guiding principle of designing adaptable, user-centred resources to meet varied needs could be applied by considering the customisation of an EdTech product. This emerging guiding practice would be adapted to the context, for example, based on the intended target users' needs and preferences. This might include adjustable font sizes, multilingual options, and gamified features that adapt to different learning paces. Furthermore, EdTech providers can consider the guiding design elements promoting WBDE in the design of EdTech products.
- **Guide cooperation with other actors.** The Model encourages collaboration between actors and highlights opportunities for EdTech to collaborate with other actors (e.g., school communities) and sectors (such as health professionals) to develop and test EdTech products.



Researchers and civil society groups can use the Model to evaluate and shape WBDE-promoting practices.

- **Researchers could consider working on the scientific validation of the model** so that it could be converted into an instrument to be used for data collection on well-being.
- **Reflect on existing WBDE-promoting practices and refine their approach.** For example, this may include checking that certain principles have been considered in the development of WBDE-promoting practices and, if not, considering whether there are opportunities to apply them. For example, researchers and civil society groups might consider incorporating a more creative and game-based approach to current WBDE-promoting practices or be inspired to explore novel technologies to promote WBDE.
- **Reflect on areas to develop new practices** to integrate well-being into school communities. For example, researchers and civil society groups might consider developing a practice based on one of the emerging guiding principles, such as strengthening strategic partnerships aligned with one of the emerging guiding principles, such as strengthening strategic partnerships among different actors.

In sum, the Model offers a structured framework that organises principles across key dimensions to enhance the implementation and sustainability of WBDE practices. By supporting well-being categories, encouraging a whole-school approach, and fostering adaptability, the Model serves as a comprehensive tool for developing practices that enhance WBDE, allowing school actors to navigate DEEs with enhanced well-being and resilience.

¹⁴ Education technology (EdTech) is a general term that refers to technology, including software and hardware, used to enhance teaching and learning processes (Wikipedia accessed 15/12/2025). However, according to the [European EdTech Alliance](#), across Europe, there is not (yet) a single definition of “EdTech” (accessed on 15/12/2025).

2.5.3. Description of the Model's core dimensions

In this section we describe each of the core dimensions of the Model, each containing a set of key emerging guiding principles that emerged from the analysis of the 23 emerging practices, research results and stakeholder input. These principles aim at suggesting concrete approaches to guide concrete design, implementation and evaluation of WBDE practices. Furthermore, key guiding principles are accompanied by examples of emerging practices, which the reader will find referenced by their name and #, for easy access to the practice detailed information provided in Table 3 of Annex 5, that describes in more detail all the 23 emerging practices analysed.

1. Fostering a whole-school approach

This core dimension recognises that successful WBDE practices require collective participation of all actors across the school community. Concretely, it emphasises the roles of learners, teachers, educators, parents, school staff, school leaders, and external community actors such as NGOs, in a unified approach that builds shared responsibility and sustained support. Key emerging guiding principles include:

- **Leadership and strategy** – Strong school leadership is essential to drive a digital strategy, implement the model, and support staff well-being, and a WBDE-dedicated strategy for the school is an essential guiding and implementation tool (*sml4change #15; HERMMES #11*).
- **Stakeholder collaboration** – Fostering dialogue, participation, collaboration and shared responsibility among teachers, educators, learners, parents, and external experts (e.g., pedagogy, wellbeing, media literacy, AI, privacy specialists and health professionals) for developing healthy, safe, legal and ethical use of digital technology in schools (*Digital Citizen Education Handbook #14*) and with clear roles and responsibilities among actors.
- **Parent and community engagement** – Involving parents in decision-making, providing resources for online safety (*Internet Matters #5 - see Box 1; HERMMES #11*) and collaborating with local organisations (NGOs) that can provide expertise, contribute to training and support extracurricular project-based activities.

Box 1. Practice for safety: Internet Matters #5

Internet Matters provides resources and expert guidance to parents and professionals to support them in navigating child internet safety. Guides and resources include:

- **My Family's Digital Toolkit:** Personalised advice and tips for parents to support their children online. Parents complete a seven-question quiz about their children's age, context factors (i.e., if they have an additional learning need, are care-experienced, or identify as LGBTQ+), their main online activities (e.g., gaming, streaming content, browsing sites for learning or schoolwork) and the apps and platforms they use, tips, tools and topic areas parents want support in (e.g., online behaviours, risks from other people online), and topics parents want interactive resources in to discuss with their child. A tailored pack of resources based on these answers is then generated for parents to support their children's online activities.
- **Digital Resilience Toolkit:** Designed for parents, age-specific resources to support their child's digital resilience. Developed in collaboration with a psychologist, the toolkit provides information on what children in their age bracket tend to do online, the challenges they may face, how to prepare them for challenges, and advice on what to do if things go wrong. Advice for parents to prepare their child for challenges includes maintaining an open-door policy, discussing online identity and critical thinking, and discussing time spent online and its health implications.

- **Student participation** – Giving students a voice in WBDE and digital policy decisions and promote belonging through co-design and feedback mechanisms in line with the principles of Rights of the Child.
- **Open dialogue on digital well-being** – Encouraging open discussions on digital habits, competences, online safety, and responsible technology use across the school community (*HERMMES #11; Be Internet Awesome #1*).
- **Safe and ethical digital environments** – Promoting WBDE enhancing features in the design of EdTech and digital education ecosystems (*Agile EDU #23*), such as: age-appropriate EdTech products with regards to content and pedagogical approaches; promoting social interactions; fostering user empowerment, self-expression and digital citizenship; effective (harmful) management mechanisms; ethical and transparent approach to data privacy and its use (algorithms); accessibility; and time management mechanisms.

2. Empowering the school community actors

This core dimension focuses on supporting a whole-school approach to Well-being in Digital Education (WBDE) by empowering all stakeholders (leaders, teachers, educators, staff, parents, learners) through awareness raising actions and accessible and tailored training for all. These actions are critical to address digital risks (e.g., cyberbullying, addiction, data privacy breaches, inequality) and ensure safe, inclusive education in digital environments. By training all stakeholders, schools foster shared responsibility, equip teachers and educators to overcome barriers (e.g., tech aversion), and empower learners. Tailored outreach and training strategies and innovative methods are needed to ensure inclusive training, adaptability of content, relevance and equity. The goal is to create a sustainable, future-ready educational ecosystem where technology enhances learning without compromising well-being, along the following guiding principles:

- **Awareness raising and training for all school actors** - All education community stakeholders, including school leaders, teachers, educators, staff, parents, learners) must be informed about **Well-being in Digital Education (WBDE)** and receive training on:
 - Digital competences and critical thinking.
 - Recognising and managing digital risks, such as online safety, technology addiction, data privacy, excessive social media use, cyberbullying, gaming, lack of attention, isolation, sexual abuse, gender-based violence, online hate speech, scams and physical impacts (see *Internet Matters #5; ENDING Project #21; DIMELIAC #7; Facts4All #10; Agile EDU #23; GenZ #16; MenABLE #17*).
 - Designing inclusive practices, such as supporting neurodiverse learners and those with math difficulties.
 - The importance and development of socio-emotional competences and strategies to protect mental health, including addressing cyberbullying (see *KID_ACTIONS #2 in Box 2*) and promoting the management and limitation of screen time.

Box 2. Practice for teachers and educators: KID_ACTIONS #2 on cyberbullying

KID_ACTIONS address cyberbullying among young people through interactive education and gamification.

- The practice created an Educational Toolkit for formal and informal educators to understand, prevent and respond to cyber-bullying. The [Educational Toolkit](#) is a repository of 20 educational activities.
- Educational activities are filterable by language, focus, kids' age, and topic. Topics covered include self-awareness, self-management, social awareness, relationship skills, and responsible decision-making.
- For example, the educational activity 'High School Superhero – From negative to positive' provides a 55-minute lesson plan for learners aged 11-13 to understand how cyberbullying can be challenged through the positive use of language and evaluate the benefits and risks of intervening in a cyberbullying situation. The necessary resources (Google Slides and the High School Superhero game) are provided, and the activity is accompanied by a video explaining how to use this tool.

Source: [KID_ACTIONS website](#); KID_ACTIONS, 2022

- **Tailored and accessible training** – Training should be tailored to the needs of each actor, and should be **context-specific, professional, and co-designed** by teachers, educators, researchers, and learners (*SOLIS #20. Sml4change #15*).
- **Training on leadership & strategy** – School leaders need digital/media literacy and guidelines to develop and assess a WBDE-promoting digital strategy (*sml4change #15; HERMMES #11*), including screentime guidelines for EdTech use, guidelines to structure activities outside screen time and guidance on AI use in educational processes.
- **Teacher training focus** – Teacher training should consider the specific needs and contexts of teachers: it should be integrated into Initial Teacher Education (ITE) and Continuous Professional Development (CPD); it must address teachers' potential psychological barriers (e.g., tech aversion, workload) and provide time and support for training; it should aim at building confidence in tech use and develop digital well-being skills; and it should help teachers understand learners' well-being needs (e.g., blended/remote learning) and how to promote inclusion addressing specific learners learning needs (with available digital resources, specific content, and adapted pedagogies).
- **Learners and parent training focus** – Specific training focus is needed for learners and parents:
 - **For learners:** Training on responsible online communication and social behaviour (*Be Internet Awesome #1; KID_ACTIONS #2*).
 - **For parents:** Provide resources and guidance on how to foster dialogue with their children on subjects such as gaming (*RITEC #9; Play It Smart #6*), internet safety (*Internet Matters #5 - see Box 1; HERMMES #11*) and screen time (*Internet Matters #5; Digital Citizenship Education Handbook #14*).
- **Innovative training approaches** – Training actions can draw on a variety of approaches and resources to support contextual adaptation, promote peer-learning, and access to finance. For example, the use of peer mentoring, sharing of good practices between teachers and schools, or developing good-practice repositories to support peer learning and contextual adaptation; and consider organising WBDE champions, school networks, and participation in EU projects to obtain financial support.

3. Pedagogical approaches enhancing WBDE

Specific pedagogical approaches are essential in digital education to ensure technology use aligns with learners' holistic well-being, balancing cognitive, socio-emotional, and physical needs. Without intentional pedagogies, the use of digital tools in education risk exacerbating stress, isolation and exclusion, or unintentional unethical behaviours. Effective approaches foster critical agency, inclusive collaboration, and healthy habits helping learners build digital literacy, ethical judgment, and resilience.

This core dimension highlights how specific pedagogical approaches can be applied to support learners' holistic well-being in digital education, including the following guiding principles:

— **Pedagogical approaches: Address foundational elements supporting well-being in digital education**

- **Development of core competencies** (literacy, numeracy, social-emotional skills, computational thinking) is essential for effective and safe use of digital technologies. That is, children should gain an appropriate level of maturity (agency and confidence, critical judgement, e.g. regarding the use of AI, ethics, etc.) to be able to prioritise their well-being when choosing to interact with digital tools.
- **Age-appropriate content and media experiences** must be prioritised (*Curriculum Digital media and Computer Studies for Steiner Waldorf Schools #13*; *HERMMES #11*), with gradual exposure to digital tools (e.g., unplugged pedagogies for younger learners such as early childhood and lower primary education) (*HERMMES #11*).
- **Balancing screen time** is crucial, i.e., blending digital and non-digital learning to prioritise well-being (*Internet Matters #21*).

— **Consider using specific WBDE-enhancing pedagogical approaches**

- **Group work and peer learning** foster trust, inclusion, and social well-being. In this context, **digital storytelling** and peer-learning approaches can be used to address topics such as bullying, anxiety, and social exclusion (*SOLIS #20 - see Box 4*; *future_fabric: demokratie digital denken #4*; *ENDING project #21 - see Box 3*).
- **Game-based learning** can support the acquisition of digital literacy and critical thinking (*DIMELI4AC #7*) and responsible online behaviour (e.g., online time management, cyberbullying prevention, media literacy, personal data management) (*'Digiland Stories' in Digital Wellbeing @ Schools #3*).
- **Creative autonomy** should be encouraged while guiding students in the use of digital devices for learning (*The ENDING Project #21*; *RITEC #9*).

— **Pedagogical approaches: Promote learners' socio-emotional, psychological and physical well-being**

- **Mutual support, social and emotional development** (e.g., through promotion of peer interactions) promote social inclusion as protective factor for psychological well-being (*3D4VIP #19*; *SOLIS #20 - see Box 4*).

Box 3. Practice on group-based pedagogical approach: ENDING Project #21

The **ENDING Project** uses a peer-learning approach to achieve the practice aims.

- After receiving general training from specialist educators, 9th-grade learners can volunteer to become '**role-model-students**'.
- Role-model students train themselves to become trainers for their 7th-grade peers, using the Guide for Students and creating materials. Role-model students can create their own content during the school year to train the 7th-grade learners.
- Role-model students are encouraged to work on certain **transversal skills** for interaction and specific thematic topics for knowledge. The following transversal skills are encouraged:
 - Preparing content aimed at raising awareness and supporting learners.
 - Offering clear and concise explanations.
 - Using effective voice projection and appropriate gestures during explanations.
 - Actively listening to suggestions, problems, and concerns.
 - Managing the physical and working environment (classroom, materials, furniture, etc.) and interacting effectively with others.
 - Creating opportunities and asking questions to encourage student participation.
 - Demonstrating a commitment to ongoing learning.
 - Recognising personal limits and seeking external help when necessary.
 - Being willing to train and mentor a new generation of role-model students.

Source: *ENDING Project (2017)*

Box 4. Practice on psychological well-being: SOLIS #20

SOLIS used **digital storytelling** to promote well-being and social inclusion.

- Learners were given the opportunity to explore diversity, inclusion, and their sense of belonging through interactive, collaborative activities, including creating digital stories.
- Creating and sharing stories with peers in a safe environment supported well-being and enabled participants to see diversity in a positive light.
- SOLIS Digital Stories are shared on a [YouTube channel](#). An example of this is 'SOLIS Digital Story Greece 6 – hospitable racists', in which a learner discusses racism and exclusion through reflecting on his/her friend's experiences in school and highlights the importance of embracing diversity.
- SOLIS also offers an [E-learning platform](#) in six languages that captures modules on bullying and anxiety, on social exclusion and on expressing emotions, among others.
- Resources and training for teachers on wellbeing, inclusion and diversity are also available in [SOLIS Biblioteca](#).

Source: [SOLIS website](#) and [SOLIS YouTube Channel](#)

- **Ensure social support and encourage open dialogue** to promote social and psychological well-being, adopting holistic approaches to WBDE, connecting individuals to support systems, and encouraging open dialogue (e.g., through parental discussions) to create more inclusive, empathetic, and supportive digital spaces and act as a protective factor for psychological well-being and promote social well-being.
 - **Physical well-being** must be promoted and integrated in pedagogical approaches with, e.g., ergonomic setups, breaks and stretching and movement to reduce digital strain (*ENDING Project #21*).
- **Pedagogical approaches: maximise opportunities that digital tools offer to promote well-being**
- **EdTech can support inclusion** of students with special educational needs and/ or disabilities (e.g., assistive technology, in *3D4VIP #19* - see *Box 5*).

- **Gamified apps can support learning and assessment** of students' WBDE related competences (Be Internet Awesome #1, Play It Smart #6, Youth Against Cyberbullying #8 – see Box 6, and European Safe Online Initiative #12, DIMELI4AC #7).

Box 5. Practice on the use of novel technologies: 3D4VIP #19

3D4VIP aimed to support the education of learners with vision impairments by creating a database, guidelines, instructions, and recommendations for creating 3D educational models for this target group. Examples of 3D models in the database include:

- **Neuron:** A neuron with dendrites, an axon and a terminal button with a cross-section of a Schwann cell for illustration purposes. Designed for Biology.
- **Tactile watch with Braille:** Clock with numbers in Braille to help learners learn to tell the time using clocks. Designed for Life Skills.
- **Tectonic plates:** Model with a raised edge on three sides and five movable parts. The parts are positioned to form a flat surface and when pushed upon, the “plates” slip over each other to show the shifting mechanism of tectonic plates and the formation of mountains. Designed for Geography.

Source: [tactiles.eu website](http://tactiles.eu)

- **Creative uses of digital tools** (e.g., music, images) (*RITEC #9*) can enhance engagement and well-being.
- The use of **health apps** or wearable trackers to set personalised reminders for movement can support well-being.

Box 6. Practice on the use of digital games and gamified apps: Youth Against Cyber-bullying #8

Youth Against Cyber-bullying created a free app in seven languages with four courses to support learners in better understanding cyberbullying issues and how to respond to them:

1. **What do you not post?** 48 situations that help users understand what posts are appropriate to be published on social networks and why. For example, the image of a person being physically assaulted is shown. The app explains that disseminating such content would not be appropriate to respect the victim's privacy.
2. **Did you know?** A quiz for users to assess their knowledge on cyberbullying issues. For example, the app presents a multiple-choice question asking how the user would define cyberbullying.
3. **A story game “Alex’s (mis)adventures”.** A game to help users understand cyberbullying from a different perspective. A character named ‘Charlie’ accompanies the user throughout the journey to help them and to remind the player that every action has consequences.
4. **How to act and protect yourself?** Advice and help numbers. If the users find themselves a witness to, a victim of, or responsible for cyberbullying, the advice tab helps them understand the situation and how to resolve it. The app also provides emergency numbers for associations that support victims of cyber-bullying.

Source: Cema Educ'Active Media Library website

4. Schools' digital readiness and inclusion

Digital readiness and inclusion are key factors for WBDE. In fact, the digital divide in its multiple facets (unequal infrastructure across regions, schools, and families at home), and the lack of digital competences among teachers and learners are factors affecting the well-being of teachers and learners, as found through the fieldwork. Hence, as a core supporting dimension for WBDE, ensuring the digital readiness of the school and the school community is essential to achieving WBDE. This dimension includes the following guiding principles:

- **Foundational digital readiness:** A WBDE strategy must be grounded in a robust digital strategy that ensures infrastructure, tools, and digital competences, and on policies that support safe, inclusive, and equitable digital access and learning for all students, including those with special needs.
- **Digital competence for all:** All school actors (leaders, teachers, educators, parents, learners) should be empowered with digital competences that foster well-being, including critical thinking, problem-solving, and creative use of technology (*Digital Citizenship Education Handbook #14; HERMMES #11; GenZ #16*) and competences to make an effective use of digital technologies for learning.
- **Equitable access and inclusion:** Digital inclusion must be prioritised by addressing digital divide gaps in access, skills, and resources (*ySKILLS #18*) with particular attention to vulnerable groups (e.g., students with disabilities, socio-economic disparities) and under-resourced schools and communities.
- **Purposeful and well-being-focused EdTech use:** Digital tools should be intentionally selected and purposefully integrated into teaching, with a focus on design elements that enhance well-being. Specific design elements relevant to WBDE include: 1. Protecting data privacy, 2. Supporting social interactions between learners, teachers and educators; 3. Supporting communication between teachers and educators and parents; 4. Facilitating social support for addressing digital risks; 5. Promoting empowerment, self-expression and digital citizenship; 6. Ensuring accessibility; and 7. Providing learner support. These design elements are presented in [Annex 4](#) and summarised in [Section 2.3](#).
- **Strategic WBDE partnerships with stakeholders,** including EdTech providers, educational institutions, pedagogical experts, and industry partners. Collaborating with industry and educational partners helps validate practice outcomes and extend their reach, while partnerships with EdTech providers ensure tools meet the evolving needs of school actors and are effective in promoting WBDE.

5. Addressing WBDE implementation barriers

This core dimension addresses the barriers and challenges identified in implementing WBDE policies and practices, as highlighted by representatives from eight emerging practices and stakeholders at the validation workshop ¹⁵. While the Model's various elements help tackle these obstacles, stakeholders emphasised the need to report on these challenges to raise awareness and direct focus towards them, thereby maximising the impact of WBDE-enhancing policies and practices.

The following barriers and challenges need to be addressed when considering developing WBDE:

- **Schools' limited priority, capacity and resources for WBDE**
 - Well-being lacks priority—treated as optional rather than part of the core curriculum.
 - Lack of school leadership and champions—no dedicated roles to drive WBDE.
 - Staffing and funding gaps—limited expertise and financial support.

¹⁵ Responding to the question: What challenges or barriers might arise when implementing the guiding principles?

- Time and resource constraints—WBDE competes with academic priorities.

— **Whole school approach challenges**

- School’s limited leadership – limited capacity to engage the different education community actors into cooperation.
- Fragmented collaboration—weak communication among stakeholders (teachers, parents, students).
- Low WBDE awareness—about WBDE’s benefits or risks.
- Unequal digital skills—among teachers, learners and parents, and a lack of available training.
- Unclear roles and responsibilities—between school and parents (e.g., on homework safety).

— **Teachers’ related barriers**

- High workload & burnout—administrative tasks and fatigue reduce focus on WBDE.
- Inadequate infrastructure—poor internet connectivity and device access in some areas.
- Low confidence in the use of digital tools for education — the insufficient teachers’ digital and WBDE skills and confidence and the use of ICT without a clear and intentional approach and digital pedagogy.
- Lack of access to professional development (CPD)—due to limited relevant WBDE-focused training programs, and lack of access to ongoing specialist support and to evolving best practices.

— **Lack of supportive policies and guidelines**

- Insufficient or missing policy priority
- Mismatch between policy & practice—schools lack resources, capacity and support (guidelines) to adopt WBDE frameworks.
- Inconsistent device policies—some schools are banning technology, while others do not provide guidance.
- Lack of monitoring/evaluation—little data on WBDE effectiveness.
- Lack of concrete examples—schools lack clear models to follow.
- Insufficient financial support for digital readiness.

— **EdTech & contextual issues**

- EdTech insufficient engagement— insufficient incentives and collaboration with EdTech providers to support the development of WBDE-enhancing platforms and products.
- Ethical concerns—around EdTech platforms remaining unaddressed.
- Rapid pace of tech changes—requiring continuous adjustments to activities/projects/content.
- Addressing diverse needs—ensure the WBDE model is suitable for different learning contexts and learners’ needs.

6. Promoting enablers for WBDE implementation

This core dimension addresses factors and related guiding principles that can facilitate the successful implementation of WBDE practices, drawing on lessons learnt from the collected practices’ barriers and enablers and from insights from participating experts in the validation

workshop ¹⁶. By leveraging appropriate enablers, WBDE practices are better equipped for effective implementation and long-term sustainability.

Enablers are grouped thematically, and provide guiding principles supporting effective implementation:

— **Leadership and strategy**

- Treating WBDE as a core, cross-curricular principle, not as an add-on to the curricula.
- Embedding WBDE in school strategy and policies, aligning with well-being, inclusion, pedagogical and safety goals and with digital strategy/curriculum and promoting an ethical use of technology.
- Ensuring school leaders are trained and empowered to champion WBDE.
- Balancing digital and non-digital approaches (e.g., analogue-first strategies, outdoor learning, collaboration).

— **Whole-school collaboration**

- Involving all stakeholders (teachers, educators, parents, learners) in co-creating a WBDE strategy.
- Fostering open communication to clarify roles and responsibilities.
- Partnering with EdTech providers, NGOs, and experts to design well-being-focused tools.
- Joining school networks or EU projects to share best practices and access funding and support for scaling them.

— **Teacher support and professional development**

- Providing dedicated time and adaptable, accessible resources for teacher training and collaboration, for example, through libraries of best practices, adaptable lesson plans or activity toolkits, and trusted classroom tools.
- Offering practical, adaptable (pedagogical) guidelines for integrating WBDE into daily teaching.
- Encouraging peer learning and peer mentoring for sustainable implementation.

— **Evidence-based implementation**

- Using (ideally tested) step-by-step guides to help schools adopt WBDE, starting with existing practices.
- Developing age-sensitive guidelines for digital tools use that align with children's cognitive, emotional, and social development stages, especially in early and primary education, based on child development research.
- Including well-being criteria for selecting and using EdTech tools and apps (e.g., privacy, accessibility).
- Providing self-assessment tools to support structured self-assessment, planning, and implementation, and monitoring tools to evaluate impact.

¹⁶ Responding to the question: What challenges or barriers might arise when implementing the guiding principles and how can they be addressed to ensure their effective and sustainable implementation in different educational contexts?

— **Policy and infrastructure support**

- Ensuring national/regional policies align with WBDE goals.
- Establishing unified policies for the use of technology in schools (e.g., screen-time balance, delayed early digital exposure).
- Allocating funding for infrastructure, training and pilot programs.
- Monitoring and adapting policies based on evidence and feedback.

— **Supportive EU policies, initiatives and instruments**

- Promote the integration of WBDE as a core, cross-cutting principle embedded in schools' curricula and pedagogical approaches.
- Promote a whole-school approach to WBDE involving all stakeholders.
- Support the implementation of WBDE innovative practices through dedicated Erasmus+ funding, including grassroots support through projects/initiatives.
- Promote WBDE-enhancing digital education ecosystems by strengthening cooperation between the EC and the private sector, with incentives for quality EdTech development.
- Support peer learning or job shadowing through teacher networks.
- Maintain policy support and guidance, through the further implementation of the Digital Education Action Plan (2021-2027) as well as the 2030 Roadmap on the future of digital education and skills foreseen to be adopted in 2026.
- Support research to strengthen the evidence base of effective practices addressing WBDE.

7. Opportunities for building sustainable WBDE

This core dimension includes opportunities that could be considered to provide structural support for effective and sustained implementation of the well-being practices/activities, with the following guiding principles:

- **Embedding WBDE in education systems.** Systematically integrate well-being practices into curricula, policies and infrastructure to ensure long-term sustainability beyond project cycles.
- **Developing continuous professional development (CPD) platforms.** Create updatable professional development resources that evolve with technological advancements (e.g., AI, misinformation) to maintain teachers' and educators' relevant skills.
- **Leveraging school networks for peer learning.** Strengthen collaborative platforms that enable schools to share innovations, resources, and implementation strategies.
- **Fostering local educational alliances.** In line with the whole-school approach, build multi-stakeholder partnerships (schools, families, communities) to create shared responsibility and long-term sustainability for digital well-being.
- **Maximising EU funding opportunities.** Strategically use Erasmus+ and other EU programs to support digital education and well-being skill development and policy implementation at scale.
- **Promoting and aligning with European Guidelines.** Continued dissemination and outreach as concerns the [Guidelines for education policy makers, school leaders, teachers and educators on well-being and mental health at school](#) (13 May 2024), which include one recommendation on the promotion of well-being in the digital age.

2.5.4. Limitations of the model

The Model has been developed based on the analysis of the 23 emerging practices identified and additional interviews with eight selected practices. Finally, it has been revised and completed with contributions from the stakeholders participating in the final validation workshop.

Several methodological limitations should be noted. Firstly, finding reliable sources of information when identifying practices posed challenges. Many potentially relevant practices were not accessible (e.g., information was not available online) or had incomplete information available, which limited the pool of practices available for review. Additionally, as the collection of emerging practices relied primarily on an internet-based literature search, the review may have overlooked relevant practices that are not documented online. This may have negatively impacted the identification of certain types of practices, for example, those conducted at local or informal levels, as well as those implemented with limited resources that lack a web presence.

Moreover, the final (limited) sample of eight practices selected for interview did not achieve full balance across education level, well-being categories, school actors, geographical representation, size, and quality. This imbalance was due to both an imbalance in the longlist of practices (e.g., only three out of 23 practices targeted physical well-being) and non-responses, as interviews were secured with only eight out of the 11 invited practices.

Another key limitation was the scarcity of information available about practices' evaluation (e.g., short- and long-term outcomes and effectiveness in achieving objectives). Additionally, the interviews were conducted with practice representatives rather than the targeted groups (i.e., school actors). This approach relies on representatives' interpretations of the practices' effectiveness for the intended beneficiaries, rather than on direct feedback from the targeted groups themselves.

Hence, while this model can be considered **an initial proposal to guide stakeholders**, the sample of practices and inputs on which it is based is certainly not representative. Furthermore, while stakeholders have validated it, it has not been scientifically validated.

2.6. Recommendations for education stakeholders

This set of recommendations for policy actors, school leaders, teachers, educators, parents, EdTech providers, and community stakeholders is designed to support the implementation of the WBDE emerging practices model. The aim is to foster a cohesive approach to WBDE, engaging all stakeholders within the education ecosystem to ensure that digital learning environments are supportive, inclusive, and conducive to the well-being of all participants.

The recommendations are informed by the project's comprehensive results, including the literature review, policy analysis, fieldwork, and the Model of Emerging Practices, along with insights from participants at the Stakeholders' validation workshop. Each recommendation supports the implementation of one or more core dimensions of the model. In [Annex 6](#), the contribution of each recommendation to the Model core dimensions is outlined.

Wherever feasible, links to the 23 emerging practices supporting WBDE are provided, with details available in [Annex 5](#). Concrete examples offered by stakeholders during the validation process are also included.

These recommendations aim to facilitate the implementation of the WBDE emerging practices model, with their relevance varying according to the specific needs of each context (influenced by learning styles, learners' needs, schools, learning environments, and country) and the level of

development and implementation of the model over time. They reflect actions suggested by various stakeholders consulted throughout the project phases. Readers should keep in mind that the overarching goal of these recommendations is to implement the suggested Model of Emerging Practices promoting WBDE described in [Section 4.5](#).

How to read this section?

Recommendations are organised per stakeholder type, i.e., policy actors, school leaders, teachers, educators, parents and carers, EdTech providers, and community actors. We recommend the reader to focus on the section relevant to its own role in the education community.

2.6.1. Recommendations for policy actors at the EU and national/regional level



This section summarises the recommendations for policy actors at the EU and national/regional levels, covering a broad spectrum of themes such as policy development that supports WBDE, awareness-raising activities, curricula development, support for schools and teachers, and the promotion of EdTech platforms and tools that facilitate WBDE. Each theme for policy action is elaborated into concrete, actionable points, addressing the need for tangible examples to aid in the implementation of the recommendations, as highlighted by participants in the validation workshop.

Summary of recommendations for policy actors at the EU and national/regional level

- R1. Development of policies supporting WBDE
- R2. Raising awareness
- R3. Curricula development for WBDE
- R4. Work towards digital inclusion as a supportive and necessary measure for WBDE
- R5. Provide support for schools
- R6. Provide support for teachers
- R7. Promote EdTech incorporating WBDE in the design of platforms and tools
- R8. Support opportunities to build sustainable WBDE
- R9. Specific Recommendations at the EU Level

R1. Development of policies supporting WBDE

National policies supporting WBDE are essential to driving change. A comprehensive analysis of 51 policies and initiatives addressing WBDE in the EU is presented in [Section 2.1](#) of this report, with detailed information available in [Annex 2](#)¹⁷. The analysis reveals that achieving well-being within the education community—comprising learners, teachers, and school leaders—necessitates a diverse array of actions. These actions can be approached from various policy perspectives, such as enhancing digital education ecosystems by improving technology infrastructure, providing access to digital tools, developing digital competencies, curriculum and assessment, and formulating school strategies. The digital education strategies and policies examined reflect this complexity, with some adopting a broad approach while others explicitly prioritise well-being as a high-level objective.

¹⁷ A complementary analysis can be found in European Schoolnet report: [Well-being in digital environment in school](#), May 2025.

Moreover, the list of policies analysed can facilitate knowledge sharing and serve as inspiration for the further development of policies supporting WBDE.

Consulted stakeholders, have identified the following priorities for policy attention:

R2. Raising awareness

- Promote awareness in education about the necessity of implementing digital literacy programs to prevent digital risks and encourage healthy usage habits.
- Conduct awareness-raising activities for school stakeholders to understand WBDE and its importance (*ENDING Project #21*).

R3. Curricula development for WBDE

- Depending on the level and competence of policymakers (e.g., EU, national, or regional) and specific MS and education competence (i.e., national or regional), support the development of curricula guidelines and/or mandate curricula that explicitly incorporate digital competences and WBDE as core and cross-cutting principles, while respecting the responsibilities of EU, national, and/or regional authorities. For example, consider the definition and model included in this report, define expected outcomes, and assist teachers, educators, and learners in understanding the steps towards achieving them. Curricula adaptation should allocate learning time to acquire digital and WBDE-related competences and support analogue-based pedagogical practices in the early years as a distinct approach to WBDE (*Curriculum Digital Media and Computer Studies for Steiner Waldorf Schools #13; HERMMES #11*).
- It is important to note that the EU does not have competences in curriculum development, making the role of national/regional actors crucial.

R4. Work towards digital inclusion as a supportive and necessary measure for WBDE

- Ensure there is a clearly defined strategy for the use of technology in learning, teaching, and assessment.
- Develop national frameworks, policies, and guidelines for accessibility and usability requirements of digital technologies.
- Secure resources to provide schools with access to digital technologies, infrastructure (including IT support and maintenance), and adequate ICT specialist resources.
- Secure resources to ensure schools have access to digital technologies for learners with special needs or high performers.
- Provide guidelines for digital inclusion measures to tackle digital divides, highlighting good practices such as offering analogue alternatives (e.g., paper-based), digital technologies with accessibility features, and integrating adaptive learning platforms that offer tailored support to learners.
- Develop guidelines for schools and teachers to ensure intentional and purposeful use of digital technology, determining the appropriateness and necessity of each tool.

R5. Provide support for schools

- **Develop national recommendations and guidelines**, along with examples of good practices, **for schools to enhance WBDE** such as on balanced digital technology use with the use of offline (unplugged) pedagogical approaches, group work, scheduled breaks from technology, guidance for recognising signs of digital overload, stretching exercises, screen time management, physical activity, stress relief techniques, respectful communication, emotional check-ins during lessons, the right to disconnect by limiting school-related communication outside school hours, and addressing cyberbullying. Engage school leaders, teachers, educators, parents, (mental) health professionals, social workers, and local community organisations to support learners. [Annex 5](#) of this report provides an analysis of 23 emerging practices, along with detailed practice descriptions, which can support the implementation of this recommendation.
- **Encourage the development of a specific self-assessment tool**, potentially building on SELFIE, adapted to well-being indicators and diverse school contexts. Refer to [Annex 7](#) for a list of suggested optional SELFIE questions on WBDE.
- **Support and promote the sharing of good practices** among schools and teachers. Recognise and reward schools that successfully implement WBDE practices.
- **Develop guidance for EdTech procurement for schools and teachers**, adopting a participatory approach that involves school actors in defining needs and guidelines. Ensure digital technologies are fit-for-purpose, designed specifically to support schools and learning outcomes, aligned with curricula, accessible, user-friendly, and effective for their intended purpose. Ensure technologies allow customised learning experiences to match the level of digital skills and address responsible and ethical considerations related to EdTech (including AI) design and development.
- **Provide financial support to develop resources for schools and teachers** to address WBDE, including training materials with lesson plans, activity toolkits, blended learning resources, and access to mental health and social well-being expertise and staff, and financial support for pilot implementation.

R6. Provide support for teachers

- **Provide support and funding for teacher training** to develop high-quality, adaptable content tailored to specific needs and contexts.
- **Adapt teachers' Initial Teacher Education (ITE) and Continuing Professional Development (CPD) curricula** to include digital technologies and WBDE, along with strategies to integrate these into pedagogical practices. CPD should also offer analogue strategies to prepare children for the digital world, such as communication, memory, and storytelling. When discussing digital well-being, it is crucial to emphasise that many digital competences can be cultivated in the analogue world before pupils enter the digital realm. Pupils can build confidence in their abilities in the analogue world before discovering that digital tools can seemingly perform tasks better and faster. Empowering learners' agency is essential and should be addressed.

- **Promote the development of practical guidelines, resources, libraries** of effective WBDE practices, lesson plans, activity toolkits, training tools, trusted classroom-tested tools, shared evaluation criteria, case studies, direct pedagogical resources, and activities that promote WBDE.
- **Support the development of methods and tools for measuring the impact** of effective implementation of WBDE.
- **Establish or support the formation of formal peer-learning networks** focused on WBDE for schools, school leaders, teachers, and educators. These networks can engage in mentoring, co-design, and innovation transfer, positioning themselves to lead context-sensitive implementation efforts effectively.

Box 7. Stakeholders' input: example of practice on school networks: INDIRE

At INDIRE, “we support national strategies for school innovation. We work closely with networks of innovative schools (Avanguardie Educative, Piccole Scuole) that test and scale transformative practices, often involving digital environments.”

Box 8. Stakeholders' input: Example of practices on school networks: Avanguardie Educative, Piccole Scuole

“School networks in Italy—like Avanguardie Educative and Piccole Scuole—already engage in mentoring, co-design, and innovation transfer. These networks are well-positioned to lead context-sensitive implementation efforts.”

- **Create and support the development of mentorship schemes** focused on WBDE by providing funding and guidance. These schemes should pair experienced school leaders, teachers, and educators with individuals seeking to enhance their competences.

R7. Promote EdTech incorporating WBDE in the design of platforms and tools

Findings from the literature review suggest that policymakers play a crucial role in ensuring education platforms and tools comply with WBDE requirements.

- **Policymakers should identify the potential risks associated with outsourcing learner data** and develop regulatory frameworks that specify when and why learner data is collected, the tools used for collection, and the methods of data transfer from schools to vendors (Carmel, 2016; Chanenson et al., 2023).
- **Define a set of WBDE requirements and recommendations** for EdTech providers (refer to [Annex 4](#) for an initial list of [Technology design elements relevant to WBDE](#). A summary of these design elements is provided in [Section 2.3](#)).
- **Consider mechanisms to ensure EdTech compliance** with established standards and requirements, such as quality assurance frameworks and the creation of EdTech testing ecosystems involving all school actors and researchers.
- **Encourage the evaluation of EdTech products** against standards and frameworks within EdTech testing ecosystems, considering elements such as legal compliance, socio-ethical considerations, accessibility, cybersecurity, and impacts on attention and social relations, including cyberbullying.

This process could influence the procurement practices for EdTech to safeguard both educational quality and learner privacy and security (Hillman, 2022).

R8. Support opportunities to build sustainable WBDE

Consider supporting initiatives to build sustainable WBDE, as outlined in core dimension 7 of the Model—Opportunities for Building Sustainable WBDE. Focus on embedding WBDE within education systems, developing continuous training platforms, promoting the formation of school networks for peer learning, maximising EU funding opportunities, and advocating for the European Guidelines on well-being-related issues, as listed in Box 9 below.

Box 9. European Commission’s Guidelines for school leaders, teachers and educators supporting WBDE

- Updated [Guidelines for teachers and educators on tackling disinformation and promoting digital literacy through education and training](#), provide hands-on guidance, practical tips, and activity plans for teachers and educators to effectively promote digital literacy and combat disinformation. They will be published in early 2026.
- [Wellbeing and mental health at school. Guidelines for school leaders, teachers and educators](#) (2024) offer detailed recommendations, supported by research evidence, good practice examples and practical tips.
- Updated [Ethical guidelines on the use of artificial intelligence \(AI\) and data in teaching and learning for Educators](#) will be published in early 2026. They are designed to help educators understand the potential that the applications of AI and data usage can have in education and to raise awareness of the possible risks so that they can engage positively, critically and ethically with AI systems and exploit their full potential.
- New Guidelines on [Making informed choices on digital education content – EU guidelines for teachers and educators](#) will offer teachers an introduction to the benefits of digital education content and actionable ideas on how to select and incorporate it in their pedagogical approaches. They will be published in 2026

R9. Specific Recommendations at the EU Level

- Advocate for the integration of WBDE as a core, cross-cutting principle within school curricula and pedagogical approaches.
- Support an EU-wide awareness campaign among education community stakeholders and EdTech providers to promote WBDE-enhancing approaches in technology development, teaching and learning practices, and educational content.
- Facilitate the development of an EU-level training ecosystem for teachers, educators, and other relevant actors, along with the creation and sharing of high-quality content.
- **Encourage the use of European instruments** as [Erasmus+ Teacher Academies](#), [eTwinning](#), [European School Education Platform](#), Erasmus+ funding, and other funding programs, as well as the application of [SELFIE for TEACHERS](#), to support the development of teachers' and educators' digital skills and WBDE competencies.

2.6.2. Recommendations for school leaders



Based on literature findings, fieldwork involving 21 school leaders from four Member States, the analysis of emerging practices, and consultation with experts through the validation workshop, this section explores how school leaders and schools as organisations can foster WBDE.

Summary of recommendations for school leaders

- R1. School leaders' training
- R2. Develop a school strategy to promote WBDE
- R3. Build a strong and supportive community based on a whole-school approach
- R4. Support teachers
- R5. Facilitate access to digital education infrastructure
- R6. Implement opportunities to build sustainable WBDE

R1. School leaders' training

- School leaders should ensure they possess relevant digital competences, an understanding of WBDE, and the capacity for effective school leadership.

R2. Develop a school strategy to promote WBDE

- To support WBDE, **school leaders could establish digital education plans** to set the standard of good practice within the school community and build trust between teachers, educators, and learners (Panesi et al., 2020).
- **School leaders should integrate WBDE into the school strategy**, including its consideration in classroom management, technology use in school/classrooms, management of data privacy, and the right to disconnect. The strategy should also include guidelines for digital communication among all school actors, addressing communication channels with safety considerations (data and privacy settings, reporting mechanisms, contact from strangers, and exposure to inappropriate content) to foster safe, responsible, and respectful communication and tackle cyberbullying. WBDE should be incorporated into all relevant school practices rather than treated as a standalone approach. The strategy should outline roles and responsibilities and promote a culture that encourages thoughtful tech use, not merely adoption for its own sake.
- **Schools need to implement measures to protect the physical and psychological health** of learners, teachers, and educators. Fieldwork illustrated the importance of measures such as providing ergonomic equipment, promoting regular screen breaks, implementing hybrid teaching models that integrate traditional and digital methods to balance the digital experience, incorporating non-digital activities like sports and arts into school routines, and offering access to psychological support. Measures also included using specialised software that supports educational (e.g., assessment) and administrative needs of teachers, and providing IT support to teachers, either through school resources or by sharing expertise with other schools.
- **School leaders need to understand their roles and responsibilities regarding WBDE**, as outlined by relevant guidelines¹⁸, and apply and translate these to their local contexts.

¹⁸ See European Commission (2024) [Wellbeing and mental health at school. Guidelines for school leaders, teachers and educators](#).

- In defining the school strategy, **school leaders should encourage participation and collaboration among school community actors** (teachers, educators, learners, school administrative staff, school psychologists, parents/guardians, health professionals, social workers, and EdTech providers) to identify needs and define school approaches to WBDE, ensuring parents' and students' voices are heard.
- **Empower students to take an active role in their digital well-being** and help them understand their responsibility in shaping it as a significant step for future societies. Students need to be invited into a psychologically safe environment to express their needs and ideas, and they should be encouraged to cultivate a culture of well-being through peer support.
- **School leaders should include a resource plan** in the digital school strategy to ensure adequate resources for maintaining WBDE.
- **Promote local champions** and WBDE ambassadors within schools and districts to take ownership of WBDE and support staff.
- **Establish a school-wide policy and guidelines to prevent and tackle cyberbullying**, including clear reporting mechanisms, accessible support for those affected, and proactive education on respectful online interactions. Ensure all school actors (learners, parents, teachers, educators, and administrative staff) are familiar with the cyberbullying guidelines and their role in prevention. Encourage and facilitate training for school staff on recognising and preventing cyberbullying.
- **Ensure the strategy is consistently applied** across schools and include mechanisms for ongoing review and updates as needed.
- **Models that promote digital exposure delay**, such as analogue-first approaches, should be considered as distinct pedagogical approaches and supported for teachers and educators who adopt this method.

R3. Build a strong and supportive community based on a whole-school approach

- **Raise awareness among the school education community** about the importance of addressing well-being within digital education ecosystems. Inform them about the model, its objectives, and the opportunities it offers to enhance well-being in digital education. Fieldwork involving 21 school leaders from four Member States highlighted the school's responsibility to raise awareness about and protect against digital risks, such as cyberbullying and cybersecurity, and to provide educational resources for all actors (school leaders, teachers, educators, technical staff, and learners).

Emerging practices, such as *Curriculum Digital Media and Computer Studies for Steiner Waldorf Schools (#13)*, offer extensive guidance on building curricula around digital technologies, including safeguards against digital risks, and can be consulted by school leaders for guidance.

- **Develop strong, student-centered communities** by organising analogue (preferably outdoor) activities, fostering real-life connections, meaningful discussions, and sharing experiences to support the achievement of the model's goals.

- **Facilitate collaboration and communication among stakeholders** on the use of digital technologies and WBDE, involving school leaders, teachers, educators, parents, (mental) health professionals, social workers, local community organisations, and municipalities to support learners. Provide a platform for school stakeholders to express their opinions on digital technology use (OECD, 2020; Passey, 2016).
- **School leaders should engage with parents** to promote collaboration between teachers, educators, and parents, offering information about the purpose and use of digital technologies within the school community. Provide guidance and support as needed to bridge the gap between learners' experiences with digital technologies inside and outside the school environment (Carretero et al., 2021).
- **Actively involve parents and communities in discussions**, particularly in advocating for screen balance and healthy routines.

Box 10. Stakeholders' input: Example of practice on community engagement: Educational Pacts

"The increasing use of territorial Educational Pacts in Italy—formal alliances between schools, families, municipalities, and local services—offers fertile ground for embedding well-being as a shared, systemic priority at the community level, creating the conditions for collective responsibility and long-term sustainability in promoting digital well-being. These have proven effective in Italy for anchoring well-being in a shared ecosystem".

- **Encourage cross-school collaborations and partnerships with civil society and research institutions**, for example, by engaging in WBDE-related projects, competitions, and Erasmus+ partnerships, often in cooperation with universities or scientific institutions, and sometimes with schools in other countries.

Emerging practices include engaging schools with researchers (*HERMMES #11*), in cross-school collaboration (*Curriculum Digital Media and Computer Studies for Steiner Waldorf Schools #13*) and with the community (*Facts4All #10*).

R4. Support teachers

- **School leaders should prioritise the Continuing Professional Development (CPD) of teachers and educators**, investing in the enhancement of their digital competences and WBDE, with a particular focus on training in privacy and security (Chanenson et al., 2023; Gigantesco et al., 2019). Fieldwork findings suggest that training should be relevant to each teacher's needs and accessible in terms of scheduling. For example, provide incentives, offer training during working hours, employ competent professional trainers, designate a well-being champion, and recognise micro-credentials. Related content should cover topics such as risks and security associated with digital technology use, preparing teachers to engage with EdTech providers while addressing ethical issues, data privacy, avoiding the commercialisation of children, selecting technology that is purposeful and fit for purpose, adapting technology to individual needs, and learning to balance digital and non-digital tools.

R5. Facilitate access to digital education infrastructure

- School leaders play a crucial role in facilitating access to high-quality infrastructure and equipment, as well as in selecting EdTech suppliers and educational products for procurement (Chanenson et al., 2023; OECD, 2019). Fieldwork findings indicate that school leaders should actively seek funding support for digital technologies and tools for digital education, pursuing resources from local authorities and exploring other sources such as EdTech donations.

Emerging practices such as MOOCs developed by the European Schoolnet (*Facts4All #10, sml4change #15*), which target educators, or freely available educational resources produced by initiatives like the *ENDING Project #21* can serve as valuable solutions when funding is not readily available.

R6. Implement opportunities to build sustainable WBDE

Consider implementing strategies to build sustainable WBDE, as outlined in core dimension 7 of the Model—Opportunities for Building Sustainable WBDE. Focus on embedding WBDE within education systems, leveraging school networks for peer learning, fostering local education alliances, maximising EU funding opportunities, and aligning with European Guidelines.

2.6.3. Recommendations for teachers and educators



Findings from the literature review indicate that teachers and educators can enhance WBDE by adopting a learner-centric approach to integrating digital technologies **into the learning environment** (Halonen et al., 2017). This includes pedagogical approaches discussed in core dimension 3. [WBDE Pedagogical Approaches Enhancing WBDE](#). Additionally, teachers and educators play a crucial role in developing learners' digital competences and therefore need to be prepared with the necessary knowledge and skills (Kumpikaitė-Valiūnienė et al., 2021).

Summary of recommendations for teachers and educators

- R1. Engage in developing the school strategy, policies, and guidelines for WBDE
- R2. Engage in learning opportunities on WBDE
- R3. Facilitate learning opportunities for learners
- R4. Reflect on personal digital competences
- R5. Promote digital inclusion in the classroom

Teachers and educators can further enhance WBDE by utilising digital technologies to support **teaching-related activities**, such as authoring and sharing educational resources (Saarinen, 2020) and facilitating communication with parents and school leadership (Kuusimäki et al., 2019). To achieve this, ongoing CPD is essential to remain updated with the latest educational technologies and their applications in the classroom (OECD, 2019a; Schulenkorf et al., 2021; Tomczyk, 2019).

Based on these literature findings, fieldwork involving 21 school teachers from four Member States, the analysis of emerging practices, and consultation with experts during the validation workshop, this section offers recommendations on how teachers and educators can foster WBDE.

— R1. Engage in developing school strategy, policies, and guidelines for WBDE

Teachers and educators should actively contribute to the development of school strategies, policies, and guidelines for WBDE to ensure they are relevant and practical. It's important for them to understand their roles and responsibilities regarding WBDE, such as integrating WBDE principles into teaching practices and utilising digital tools effectively and responsibly. A set of supporting guidelines is outlined in Box 11 below.

Box 11. European Commission's Guidelines for school leaders, teachers and educators supporting WBDE

- Updated [Guidelines for teachers and educators on tackling disinformation and promoting digital literacy through education and training](#), provide hands-on guidance, practical tips, and activity plans for teachers and educators to effectively promote digital literacy and combat disinformation. They will be published in early 2026.
- [Wellbeing and mental health at school, Guidelines for school leaders, teachers and educators](#) (2024) offer detailed recommendations, supported by research evidence, good practice examples and practical tips.
- Updated [Ethical guidelines on the use of artificial intelligence \(AI\) and data in teaching and learning for Educators](#) will be published in early 2026. They are designed to help educators understand the potential that the applications of AI and data usage can have in education and to raise awareness of the possible risks so that they can engage positively, critically and ethically with AI systems and exploit their full potential.
- New Guidelines on [Making informed choices on digital education content – EU guidelines for teachers and educators](#) will offer teachers an introduction to the benefits of digital education content and actionable ideas on how to select and incorporate it in their pedagogical approaches. They will be published in 2026.

— **R2. Engage in learning opportunities on WBDE**

Teachers and educators should take advantage of CPD opportunities or participate in peer-learning or mentoring schemes to understand how digital technologies can be implemented to support WBDE. They should engage in training to recognise learners' well-being and adapt teaching approaches to preserve it. They should consider supporting fellow teachers and educators by participating in peer learning, mentorship schemes, and other knowledge-sharing systems.

— **R3. Facilitate learning opportunities for learners**

Teachers and educators should create opportunities for learners to reflect on and develop their digital and WBDE-related competences by engaging students in discussions about online safety, digital citizenship, and well-being. They should act as a model for learners by exemplifying good practices in digital competence, such as critically analysing media content with learners, demonstrating respectful online communication, identifying and preventing cyberbullying, and making balanced and purposeful use of technology.

Furthermore, literature indicates that **developing teachers' and educators' digital competences can empower both educators and learners** (OECD, 2023) and act as a protective factor against digital risks faced by learners (Lynn et al., 2022). Digitally empowered teachers, backed by inclusive policies, can help reduce social exclusion in education (Agency for Special Needs & Education, 2022) and prepare learners to participate effectively in the digital economy (Lynn et al., 2022; OECD, 2020a). This includes fostering digital literacy, problem-solving skills (Lynn et al., 2022), critical thinking, media literacy, resilience to disinformation (Council of the European Union, 2022), and the purposeful use of digital technologies, emphasising meaningful application rather than generic adoption.

Concrete recommendations for teachers and educators in this area include:

— **R4. Reflect on personal digital competences**

Teachers and educators should assess their own digital competences, identifying strengths and areas for further development. For example, utilise tools such as [SELFIE](#) and [SELFIEforTEACHERS](#) and incorporate the insights gained into personalised learning plans as part of CPD.

— **R5. Promote digital inclusion in the classroom**

Teachers and educators should encourage digital inclusion and personalise learning experiences with digital technologies. They should pay particular attention to learners at risk of exclusion, ensuring equitable access and support.

Box 12 below includes good practices to support the development of teachers' and educators' digital competences.

Box 12. Good practices on equipping educators with digital competences to navigate Digital Education Ecosystems (DEE)

- [Erasmus+ Teacher Academies](#) aims to enhance teacher education in Europe by creating networks and communities of practice, promoting mobility, and addressing thematic priorities such as inclusion, climate change, digital transformation, and common values. The program seeks to improve the attractiveness of the teaching profession, address teacher shortages, and offer effective professional development opportunities. Eligible applicants, including Teacher Education Institutions, can form consortia to develop innovative approaches and practices focused on improving the quality and accessibility of teacher education. The program encourages collaboration among EU Member States and associated third countries, promoting sustainable partnerships and addressing key challenges in the teaching profession.
- [SELFIE for TEACHERS](#) is a free self-reflection tool for primary and secondary teachers. Launched in October 2021, it is run by the EC to support teachers in developing their digital competence. The tool presents teachers with a set of questions to reflect on their use of digital technologies across different areas based on the European Digital Competence Framework for Educators ([DigCompEdu](#)). It generates a report on their proficiency in each area. Teachers can complete the self-reflection regularly to track their progress. The responses are anonymous, and participants can choose to receive a certificate and a digital badge for taking part.

2.6.4. Recommendations for parents and carers

Based on literature findings, fieldwork conducted with 21 parents across four Member States, the analysis of emerging practices, and contributions from stakeholders during the validation workshop, this section explores how parents and carers can foster learners' WBDE.

Summary of recommendations for parents and carers

- R1. Parents as Role Models
- R2. Engage in discussions and reflections with their children
- R3. Reflect on their own digital competences and pursue training to strengthen weaker competencies
- R4. Engage with schools
- R5. Promote safe and balanced technology use at home

Learners' access to digital resources can vary significantly based on their family backgrounds.

For instance, parents with higher socio-economic status (SES) and education, single parents, and parents of children with special education needs (SEN) report encountering more online harms and engage in more parental mediation. Additionally, parents and children of higher SES tend to be more digitally advantaged, accessing the internet more frequently and using a broader range of devices (Gottschalk, 2019; Zhang and Livingstone, 2019). Parents with higher SES are often more aware of the health and privacy risks associated with digital technologies (Krist et al., 2017), resulting in more protective digital habits among their children.

— **R1. Parents as Role Models**

Parents should recognise their role as models for learners and act accordingly by demonstrating good practices. This includes using only trusted apps, verifying the credibility of sources before sharing news on social media, and limiting the time spent on digital devices. Parents can utilise the set of guidelines produced by the European Commission, outlined in Box 13 below.

Box 13. European Commission's Guidelines for school leaders, teachers and educators supporting WBDE

- Updated [Guidelines for teachers and educators on tackling disinformation and promoting digital literacy through education and training](#), that provide hands-on guidance, practical tips, and activity plans for teachers and educators to effectively promote digital literacy and combat disinformation. These will be published in early 2026.
- [Wellbeing and mental health at school. Guidelines for school leaders, teachers and educators](#) (2024) offer detailed recommendations, supported by research evidence, good practice examples and practical tips.
- Updated [Ethical guidelines on the use of artificial intelligence \(AI\) and data in teaching and learning for Educators](#) will be published in early 2026. They are designed to help educators understand the potential that the applications of AI and data usage can have in education and to raise awareness of the possible risks so that they can engage positively, critically and ethically with AI systems and exploit their full potential.
- New Guidelines on [Making informed choices on digital education content – EU guidelines for teachers and educators](#) will offer teachers an introduction to the benefits of digital education content and actionable ideas on how to select and incorporate it in their pedagogical approaches. These will be published in 2026.

During the fieldwork, **parents reported using various digital technologies to support their children's schoolwork.** Common devices and tools include computers, laptops, smartphones, tablets, and e-books, along with Virtual Learning Environments like Microsoft Office. Cloud services such as Google Drive and Gmail were also frequently used for organising and submitting school-related tasks.

- **R2. Parents should engage in discussions and reflections with their children** regarding the use of digital technology and responsible behavior (e.g., using conversation guides). They should also help their children cultivate digital habits and discipline.

Emerging practice examples and resources for parents to engage with children are available in the following initiatives: *Be Internet Awesome #1, Internet Matters #5, Play It Smart #6, RITEC #9, and HERMMES #11.*

Higher parental digital competence can enhance the digital skills of their children

(Hietajärvi et al., 2020; OECD, 2020), enabling parents to actively guide or assist their children in their use of technology. Many parents who participated in the fieldwork supported their children's digital learning by helping them search for information, use schoolwork applications, and communicate safely online. However, some parents felt their own digital skills were insufficient or

believed their children's abilities were unaffected by them. Approximately a quarter of the parents believed their children were more digitally competent, particularly in families with medium socioeconomic status.

Several of the emerging practices analysed aim to increase parents' digital competence and help them better understand their children's digital use. These include *Play It Smart* #6 and *RITEC* #9 for gaming, *Internet Matters* #5 and *DIMELI4AC* #7 for media literacy, and *HERMMES* #11 and the *European Safe Online Initiative* #12 for digital safety and privacy.

- **R3. Parents should reflect on their own digital competences** to identify strengths and areas for improvement. They should consider **pursuing training** to strengthen weaker competencies, aiding them in supporting learners navigating digital technologies. Supporting tools in this regard include the European Commission's Digital Skills Test ¹⁹.

In remote learning contexts, parents may need to assume a more active role in their children's digital education. This can involve limiting distractions in the learning environment and providing digital support when necessary (Carretero et al., 2021; Walters et al., 2022).

To support learners, parents engage in **digital parenting**, which includes monitoring the amount of time their child spends on digital technology and restricting usage to specific time slots (Gottschalk, 2019). During fieldwork, parents also reported supervising their children's online activities and monitoring access to websites and other content. Literature suggests that this practice, along with viewing media content together, can positively impact learning outcomes (Hietajärvi et al., 2019). However, this is only effective when supervision is balanced, as overly restrictive measures may discourage learners from seeking parental guidance when faced with digital risks (Yaman et al., 2019), thereby limiting parents' ability to provide supervision.

Emerging practices, such as *Be Internet Awesome* #1, encourage learners to engage with digital content under parental guidance.

Additionally, some parents **promote offline activities** like sports and outdoor time, though they acknowledge the challenge of avoiding technology, given its pervasive presence in daily life.

Parents also play a crucial role in **bridging learners' digital literacy practices at home and those at school**. This can be achieved by discussing and reinforcing e-safety rules (Grant, 2010), deciding which digital technology activities they consent to or decline for their child (Carmel, 2016), and engaging in communication with teachers and educators to stay well-informed about their child's learning progress. By working collaboratively with educators, parents can better support their child's learning (Kuusimäki et al., 2019; Pluim & Gard, 2018). To effectively fulfill this role, parents should:

- **R4. Engage with schools** to stay informed about digital education initiatives and collaborate in promoting well-being. Actively communicate with school staff, including teachers, educators, and administrative personnel, to support learners' well-being by sharing relevant information regarding the child's needs and circumstances.

¹⁹ This [online test](#) is based on the European Digital Competence framework ([DigComp 2.0](#)) and is available in all EU official languages.

- **R5. Promote safe and balanced technology use at home** by setting guidelines and boundaries. Align home practices with school policies, reinforcing school guidelines and recommendations at home to ensure a consistent approach for learners. Parents and teachers can shape learners' digital habits through various means, such as limiting screen time and regularly checking in.

2.6.5. Recommendations for EdTech providers



Findings from the literature indicate that EdTech providers can significantly contribute to well-being through the thoughtful design of their technology and the integration of features that uphold safety, privacy, and accessibility (O'Neill, 2023). These embedded features are essential for creating an environment where learners can confidently engage with digital tools, assured that their personal information is secure and their digital experiences are tailored to their needs. EdTech providers should be mindful of the various contexts in which their products are used, taking into account factors such as cultural assumptions (Facer & Selwyn, 2021). It is imperative for EdTech providers to ensure that their products comply with legal provisions, such as the General Data Protection Regulation (GDPR), as well as any other local laws in the regions where their products are sold (Carmel, 2016; Chanenson et al., 2023; Kumar et al., 2019). Additionally, EdTech providers need to assume greater responsibility for ensuring that cybersecurity standards are met to protect users' privacy and security, and they should communicate this transparently (Hillman, 2022b).

The research activities conducted with EdTech providers have led to the preparation of a list of technology design elements relevant to Well-Being in Digital Education (WBDE), detailed in [Annex 4](#). A summary of these design elements is provided in [Section 2.3](#).

Summary of recommendations for EdTech providers

- R1. Adopt a user-centred design approach
- R2. Collaborate with educational institutions and child development experts to co-design tools
- R3. Organise EdTech testbeds to conduct iterative testing with end-users

In line with these findings, the following are concrete recommendations to edTech providers to engage in WBDE-enhancing design of their digital platforms and tools contributing to WBDE of students, teachers and educators:

- **R1. Adopt a user-centred design approach** in the design of digital platforms and tools and adhere to design guidelines or requirements that respect user well-being, GDPR, and accessibility and usability standards.
- **R2. Collaborate with educational institutions and child development experts to co-design tools** that support WBDE, focusing on technology design elements relevant to WBDE (see [Annex 4](#)), including data privacy protection, accessibility, and age-appropriate content.
- **R3. Organise EdTech testbeds to conduct iterative testing with end-users**, allowing for the development and refinement of products to ensure they are fit for use in their intended deployment context, including various education levels, and compliant with usability requirements.

2.6.6. Recommendations for civil society organisations

Within the whole-school approach, civil society organisations including local community actors play a complementary, specific role in developing WBDE for learners and teachers.

Summary of recommendations for civil society organisations

- R1. Build partnerships with schools
- R2. Support competence development programs
- R3. Encourage community involvement

Specifically, these stakeholders can:

- **R1. Build partnerships with schools** to create a comprehensive support system for learners, ensuring that digital education initiatives are inclusive and address community needs.
- **R2. Support competence development programs** that enhance digital literacy and well-being for all community members.
- **R3. Encourage community involvement** in educational activities that promote WBDE.

3. Conclusions and opportunities for future research

This report summarised the findings of the study on well-being in digital education (WBDE), conducted as a follow-up action to the [2022 Council Conclusions on Supporting Well-being in Digital Education](#) and its call for research on the impact of digital technologies on the well-being of learners, teachers and educators.

The study aimed to contribute to a deeper understanding of WBDE in the EU by reviewing the literature, identifying WBDE policies and emerging practices, holding a focus group with EdTech providers, gathering evidence from 12 schools across four Member States and consulting a range of education stakeholders for final validation. The study also aimed to provide practical tools, including a **Model of Emerging Practices for WBDE** and set of optional SELFIE questions on promoting well-being in digital education, and recommendations to educational stakeholders. These resources aim to ensure digital education supports and does not compromise the well-being of learners, teachers and educators

As a first attempt to explore the concept of well-being in digital education, no actual definition was found on the literature for well-being in digital education, and based on the 2022 Council Conclusions' proposal and through a literature review, the study proposed the following **conceptualisation of WBDE**, to be used as a reference for the research activities:

Physical, cognitive, social, and psychological states and their interconnected development of learners and educators brought by their engagement in digital education. It considers wider teaching and learning, and socio-economic and cultural background and policy contexts as well as the role of other whole-school actors. Such well-being aims to maximise the opportunities (e.g., self-realisation, resilience) and minimise the risks (e.g., safety, digital divide related) brought by digital education.

The study also identified the following **six aspects of well-being**: psychological well-being including emotional and mental well-being, physical well-being, cognitive well-being including digital competence, social well-being, safety and digital divide.

The EU policy framework, i.e., the EU's 2022 Council Conclusions on supporting well-being in digital education and the Digital Education Action Plan 2021–2027, has elevated WBDE as a priority. The insights gained in this study will feed into the 2030 Roadmap on the future of digital education and skills which will guide EU action on digital education and skills towards more inclusive, resilient and future-ready education systems in the age of Artificial Intelligence. Most of the WBDE **national policies** identified addressed well-being as a high-level objective, while in other cases, WBDE was not explicitly stated as a policy objective but could be inferred from its relevance to WBDE aspects (e.g., focus on infrastructure and the digital divide). The need for well-being in digital education, demonstrates the necessity for **policies that integrate and prioritise well-being in digital education**. This integration is crucial for creating inclusive and supportive educational environments that address the diverse needs of learners, teachers and educators across Member States.

Teachers, educators and learners rely on a broad but standard range of digital technologies, including smartboards, computers, smartphones and communication apps. Some of these are used in classroom instruction, homework and leisure activities, reflecting the blurred lines between educational and personal use. **Digital technology design elements**, such as data privacy, social interactions, communication with parents and teachers and educators, empowerment, social support and accessibility, are vital for fostering a supportive learning environment, promoting autonomy, social cohesion, and equitable access, especially for those with special needs.

The use of digital technologies has a dual impact on learners, teachers and educators, enhancing cognitive and social learning while posing well-being challenges such as fatigue, headaches, disrupted sleep, cyberbullying, deterioration of in-person relations, and stress and anxiety. The digital divide caused by disparities in digital competences and infrastructure deficiencies in schools and at home, and costs can reinforce existing or create new inequalities affecting well-being of those more vulnerable, highlighting the need for improved digital skills and equal access and opportunities. There is, hence, a pressing need for **balanced and mindful integration of technology in education** to mitigate the negative impacts on physical, psychological, and social well-being. Policies and practices must focus on age-appropriate, purposeful and balanced use of technology, supported by unplugged pedagogies, to promote socio-emotional well-being, ensure safety and minimise distractions, thereby harnessing these technologies effectively.

The study finds the **influence of contextual factors on well-being impacts**, such as the accessibility to quality digital technology, the level or lack of digital competences, the available social support, and the general teachers' workload. In particular, the persistent digital divide remains a significant barrier to achieving WBDE. **Addressing disparities in digital competences** among teachers and learners, as well as **infrastructural and cost barriers**, is essential to ensure that all learners, teachers and educators have equitable access to digital tools and resources.

The emerging practices underscore the **effectiveness of a whole-school approach** combined with involvement of civil society. This collaborative model fosters a shared responsibility for well-being, encouraging all stakeholders—school leaders, teachers, educators, learners, parents, and the broader community—to actively participate in promoting WBDE. For that purpose, awareness-raising and training are priority actions. The recommendations highlight **the need for collaboration among stakeholders**, including policymakers, school leaders, teachers, educators, parents, and EdTech providers. By working together, these groups can develop and implement strategies that integrate well-being principles into digital education, ensuring school and home environments that are supportive, inclusive, and conducive to the well-being of all participants.

Based on the analysis of emerging practices promoting WBDE and insights from the research, a **Model of Emerging Practices Promoting WBDE** is proposed. This represents the first attempt to define a model of practices aimed at promoting well-being in digital education, structured around key core domains with guiding principles. The Model underscores the need for a whole-school approach, empowering all members of the educational community through awareness-raising and training, ensuring digital readiness, adapting the curriculum, and adopting WBDE-enhancing pedagogical approaches, among other strategies. This structured model provides a flexible framework for designing, implementing, and evaluating WBDE practices, with an emphasis on collaboration and inclusivity.

Stakeholder recommendations for policymakers, school leaders, teachers, educators, parents, EdTech providers, and civil society stakeholders stress cohesive efforts to integrate well-being into digital education, ensuring supportive and inclusive environments.

Well-being in digital education is rapidly evolving, driven by emerging AI technologies, among others. **Ongoing evidence-based research is critical** to inform policy updates and practical guidance as new challenges arise and timely policy responses are essential to equip stakeholders with evidence-based strategies to address technological change, enabling EU and Member States to adapt policies and practices to safeguard learners' and educators' well-being in dynamic digital ecosystems. The following areas are considered important for future research:

- **Consider the impact of emerging technologies:** explore their existing and future use in DEEs and opportunities to enhance WBDE. Addressing the impacts and opportunities of emerging technologies in DEEs (e.g., exploring the impact of AI on cognitive well-being or increasing learners' and teachers' and educators' resilience through extended reality simulations) can create an evidence base to guide actions promoting WBDE.
- **Explore the impact of AI tools in schools:** This report was largely conducted before the widespread adoption of generative AI tools and their application in educational contexts, as informed by the fieldwork. Evidence-based research is essential to support policy development and guidance for educational stakeholders in addressing the emerging challenges related to the use of AI in schools and wellbeing in its different dimensions - including Artificial Intelligence's impact on learners' cognitive development and mental resilience, exposure to inappropriate content, human agency, and distraction. It needs to be noted that as of this publication, at the EU level, the updated European Digital Competence Framework ([DigComp 3.0](#)) has incorporated AI-related knowledge, skills and attitudes in all 21 competences of DigComp, and other initiatives are underway, including the AI Literacy Framework for primary and secondary schools (to be launched in 2026 by the European Commission in cooperation with the OECD) and the 2030 Roadmap on the future of digital education and skills, which will address these emerging challenges.
- **Investigate how to reduce learners' exposure to inappropriate content:** Explicit material, cyberbullying, and misinformation pose significant risks to learners' well-being. However, learners frequently raised incidents of inappropriate content during fieldwork. Research could examine the prevalence, impact, and mitigating strategies related to learners' exposure to inappropriate content, particularly among younger learners, to reduce safety risks.
- **Investigate the nature of distraction in WBDE:** Distraction was one of the most frequently reported impacts of digital technologies, as well as the blurred boundaries between their use for educational and leisure purposes. A deeper analysis of distraction is essential to develop a nuanced, contextual understanding of how it manifests in Digital Education Ecosystems (DEEs) and its effects on WBDE. Exploring the causes of distraction in digital technologies and examining how digital technology design might address these issues could be pursued by, or in collaboration with, EdTech providers.
- **Investigate how school strategies and pedagogies can effectively promote children and youth active participation** in the definition of the school strategy on well-being and digital education, and participation in the related decision-making processes, in line with the whole school approaches to wellbeing and mental health that stem from the [2021 EU strategy on the rights of the child](#), the [2022 Council Recommendation on Pathways to School Success](#) and the [UN Convention on the Rights of the Child](#).
- **Explore interactions among well-being categories**, focusing on the correlation between psychological well-being (e.g., stress, anxiety, nightmares) and other dimensions of well-being (e.g., physical activity, social interactions) within Digital Education Ecosystems (DEEs). Impacts on psychological well-being often coincided with other well-being impacts, particularly in the safety dimension for learners and the physical and social well-being dimensions for teachers and educators.

- **Explore guidelines on screen time and multi-device use:** Numerous digital technologies, such as smartphones, laptops, and smartboards, are commonly used in schools. To gain a deeper understanding of the current use and impact of screen time in educational settings, research could examine screen time from a multi-device perspective. This would involve collecting quantitative data on the screen time of learners, teachers, and educators, including the apps and content they engage with across all digital devices used in schools. Such an approach will provide a more comprehensive understanding of digital technology use patterns and their impact and help develop guidelines tailored to different age ranges.
- **Review and evaluate cooperation opportunities between EdTech providers, end-users, and relevant authorities, including EdTech testbed ecosystems:** The EdTech focus group highlighted opportunities for cooperation to develop digital technologies and endorsed the introduction of an EdTech testbed ecosystem. Future research could explore opportunities for cooperation, identify good practices, and identify key factors for the success of EdTech testbed ecosystems.

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List of abbreviations and definitions

Abbreviations	Definitions
AI	Artificial Intelligence
BIK	Better Internet for Kids
CBT	Cognitive Behavioural Therapy
CDP	Continuous Professional Development
DEAP	Digital Education Action Plan 2021-2027
DEE	Digital Education Ecosystems
DELTA	Digital Education: Learning, Teaching and Assessment
DSCT	Digital diaries and Self-Control Tools
EdTech	Educational Technology
EU	European Union
GDPR	General Data Protection Regulation
GPS	Global Positioning System
ICT	Information and Communication Technologies
ITE	Initial Teacher Education
IVET	Initial Vocational Education and Training
JRC	Joint Research Centre
KPI	Key Performance Indicators
MOOC	Massive Open Online Course
SEN	Special Education Needs
SES	Socio-Economic Status
VET	Vocational Education and Training
VA	Visionary Analytics
WBDE	Well-being in Digital Education
XR	Extended Reality

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Annexes

Annex 1. Glossary

Term	Description
Continuing Professional Development (CPD)	CPD is the means by which members of professions maintain, improve and broaden their knowledge and skills and develop the personal qualities required in their professional lives, usually through a range of short and long training programmes, some of which offer accreditation. This job-related continuing education and training refers to all organised, systematic education and training activities in which people take part to obtain knowledge and/or learn new skills for a current or a future job. <i>Source: DigCompEdu</i>
Digital competence	Digital competence can be broadly defined as the confident, critical and creative use of ICT to achieve goals related to work, employability, learning, leisure, inclusion and/or participation in society. <i>Source: DigComp Framework.</i>
Digital education ecosystem (DEE)	DEE is defined by the Council conclusions on supporting well-being in digital education (2022) as having the following components: infrastructure and equipment (including accessible and assistive technologies), connectivity, digital education content, equipping educators with the knowledge and skills to integrate EdTech into the pedagogical process, the development of digital skills and competences for learners and educators, and the creation of conditions conducive to interpersonal relationships within digital learning environments.
Digital technology	<p>Digital technology (hardware, software, digital content) is used in teaching and learning at schools (within the scope of this study) or used at home for learning and teaching (e.g. doing homework). It includes devices (e.g., smart boards), digital content (e.g., virtual learning environments), and other technology categories, as presented below.</p> <p>Examples of <u>mainstream</u> digital technologies:</p> <p>Digital platforms and virtual learning environments serve as access points for learning materials and educator-learner/learner-learner interactions to facilitate remote and hybrid learning.</p> <p>Assistive technologies facilitate tailored support to learners, particularly for those with special educational needs.</p> <p>Smartboards and projectors are interactive whiteboards that are touch-sensitive – they can be standalone touchscreen computers or connected to other hardware, such as computers and projectors, to control the board and display the screen.</p> <p>Digital games, gamified apps played on digital devices, and applications that incorporate typical elements of gameplay, such as scoring points, are used to encourage engagement in education.</p> <p>Supporting hardware and unspecified digital technologies include desktop computers, laptops, tablets, mobile phones, and Internet access.</p> <p>Examples of <u>emerging</u> digital technologies:</p> <p>AI and robots: simulation of human mental processes by software/ machine and hardware that is programmed to perform specific movements and functions.</p> <p>Blockchain technology: a method of database storage that enables the secure sharing of information; applications in education, including issuing/securing certificates and managing resources.</p> <p>Extended reality (XR): technologies that create:</p>

	<p>virtual reality (VR) - immersion into a computer-generated 3D environment, augmented reality (AR) - computer-generated content is overlaid onto the real-life environment, mixed reality - computer-generated environments that combine elements of real-life and virtual environments.</p> <p>Drones: aircraft designed to be flown without a pilot on board, can be used to engage learners in STEM (science, technology, engineering, mathematics) subjects.</p> <p>Global Positioning System (GPS): although GPS is not a recent innovation, the ubiquity of mobile phones and other devices in the classroom provides opportunities for innovative applications of GPS in the classroom.</p> <p>Well-being enhancement apps and Digital Self-Control Tools: applications with an explicit focus on improving well-being and tools that help users reduce their screen time (e.g., well-being enhancement apps, mindfulness apps).</p>
EdTech providers	Providers of digital technology used in schools. It includes companies that provide educational technology (EdTech) and other digital technology solutions (services and products) used in schools. EdTech providers may also include company leadership, developers, and other members representing the community. It also includes a wider EdTech community (e.g., associations representing EdTech providers).
Educators	Any person involved in the process of teaching, guiding and facilitating learning. In particular, it refers to educators at all levels of formal education within the scope of this study, ranging from primary and secondary to IVET (except instructors, in-job trainers, company representatives, or other individuals who are not educators).
Learners	Individuals participating in the formal educational programmes at schools within the scope of this study, i.e. primary, lower secondary, upper secondary, and IVET.
Parents and carers	<p>The group of 'parents or carers' (in short, parents) is complex as it does not necessarily imply biological parents. The composition of the group may also depend on each country's legal framework. For the purposes of the study, we will define the group as:</p> <p>Individuals who are parents of children selected for the fieldwork.</p> <p>Individuals who are legal carers of children selected for the fieldwork (e.g. foster parents, immediate family members such as grandparents).</p> <p>Individuals who are de facto caring for the children are selected for the fieldwork.</p> <p>Parents or carers referred to in the literature analysed.</p>
School leaders	The group of school leaders, depending on the country and school, may be multifaceted as 'school leaders' may include individuals who work as school heads, their deputies, head of studies or the ICT coordinator. To inform better selection, we aim to engage school leaders with decision-making power on educational matters (e.g., curricula, use of technology in teaching and learning), the formulation and implementation of school strategy (including digital education and safety), and local and national policies related to WBDE. School heads and deputy heads should be considered as school leaders even if they also have teaching duties.
Schools	The scope of the study includes primary, lower secondary, upper secondary and initial vocational education and training (IVET) schools.
Well-being in digital education (WBDE)	Definition used in this study: Physical, cognitive, social, and psychological states and their interconnected development of learners and educators brought by their engagement in digital education. It considers wider teaching, learning, and socio-economic, cultural background and policy contexts as well as the role of other whole-school actors. Such well-being aims to maximise the opportunities (e.g., self-realisation,

resilience) and minimise the risks (e.g., safety, digital divide-related) brought by digital education.

Categories and examples of well-being in digital education:

Physical (e.g., physiological aspects, activity levels/movement, sleep, blood pressure, vision).

Cognitive (e.g., academic performance, problem solving, engagement/motivation, digital literacy)

Social (e.g., social inclusion, digital parenting, interaction with peers, parents, educators, digi-stress)

Safety (e.g., autonomy, privacy, exposure to harmful content, data protection)

Psychological (emotional and mental well-being, e.g. stress, burnout, resilience, emotional regulation, self-worth, body image, anxiety)

Digital divide (e.g. social inclusion, equality, accessibility, access to technology, discrimination).

Annex 2. List of Member States' policies and initiatives on WBDE

#	MS	Initiative name	Description	Well-being area analysed
1	BE	Bednet, what is this? Reference: Bednet (n.d.)	Bednet is an online distance learning solution for learners who cannot attend school regularly (e.g. learners with psychological problems, chronic illnesses, cancer, have been through accidents, injuries, surgery, or are young moms). The distance learning is provided to support learners to continue with their learning process, keep in touch with peers, and continue to belong to the class group.	Digital divide: <ul style="list-style-type: none"> • Aims to support learners who are ill and regularly, or for long periods, are unable to go to school by providing them with an online remote learning system. • Allows learners to combine the platform with going physically to school to provide more flexibility for those who are not absent full-time. • It aims to make education more flexible and align with the needs of each student. Social <ul style="list-style-type: none"> • Bednet promotes social inclusion and combats underachievement and school retention by providing an accessible platform. Through the use of Bednet and its video-conferencing facilities learners can communicate and keep in touch with peers to not feel left out.
2	BE	XR Action Plan Reference: Eurydice (2023a)	The XR (Extended Reality) Action Plan focuses on the professionalization and further development of XR to support learning effects in technical and vocational secondary education .	Cognitive: Support learning effects, in-service training.
3	BE	Warm Schools Reference: Warm Schools (n.d.)	The objective of warm schools is to welcome every child and give them a sense of learning and life by creating a close-knit learning nest (incl. digital experiences). It aims to strengthen the resilience and mental well-being of children . It wants to develop a warm community where everyone's uniqueness and talents are developed through personalized learning paths.	Social: relationship, involvement, creating a close community. Mental: work (teachers, school leaders) satisfaction, less dropout and truant behaviour.
4	BE	CLBch@t Reference: CLB (2022)	The XR (Extended Reality) Action Plan focuses on the professionalisation and further development of XR to support learning effects in technical and vocational secondary education . CLBch@t is a cross-network initiative of the pupil guidance centres (CLB) in Flanders and Brussels. It is a chat box where all students and parents can chat free of charge and anonymously about the health, learning process, study choice, and well-	Mental, Social: addresses behavioural problems, emotional problems; addresses: social skills. Physical: preventative health care like medical checkups, vaccinations, information on nutrition/substance abuse.

#	MS	Initiative name	Description	Well-being area analysed
			being of the student. The chat assistants offer a broad welcome, clarification of questions, information, advice, emotional support, and a referral. All staff are professionals with extensive training and experience in the CLB care and support system.	
5	BE- FL	Level Up Flanders Reference: Vlaamse Regering (2022)	The objective of warm schools is to welcome every child and give them a sense of learning and life by creating a close-knit learning nest (incl. digital experiences). It aims to strengthen the resilience and mental well-being of children . It wants to develop a warm community where everyone's uniqueness and talents are developed through personalised learning paths. Level Up Flanders is the second Gaming Action Plan (2022-2025). It identifies that the gaming sectors has three main needs: attracting (risk) capital, business skills to attract investors, and international visibility of Flemish productions. The main goal is to take the game policy in Flanders to the "next level" and make the game sector a fully-fledged economic sector. While its main objective is to develop the actual sector by attracting new companies and investors, an inter-ministerial approach is taken, including objectives such as to stimulate educational games and game-based learning in education .	Safety: safe and responsible gaming, risks associated with gaming, unethical gameplay practices.
6	BE- FL	All digital Reference: Welzijnszorg (nd)	Welzijnszorg is an initiative that has the overall goal to help with poverty reduction, networking, and expertise. Part of this initiative is the campaign "All digital" that aims to fight for digital inclusion and for a non-digital alternative . More generally, the campaign aims to draw attention to the impact of digitalization on the lives of people in a poverty situation to shape policies in digital inclusion and well-being.	Digital divide: access to Internet and devices, poverty reduction.
7	BE	What What Reference: WatWat (n.d.)	Wat Wat is a platform of more than 80 organizations (working on gender, employment, culture, democratic participation) that aims to inform and guide young people (aged 11-24) looking for advice and help. Wat Wat strives for a society where young people make informed choices and get a voice. Where young people can develop their identity in a positive way regardless of social and cultural background.	Mental: mental health, exam stress, drop out, ADHD, autism. Social: social relations, relations with peers, social media, problems at schools. Safety: privacy.
8	BG	Beyond smiles. How are you really?Beyond	Welzijnszorg is an initiative that has the overall goal to help with poverty reduction, networking, and expertise. Part of this initiative is the campaign "All digital" that aims to fight for digital inclusion and for a non-digital	Mental: Expression, anxiety, self-harm and suicide, substance abuse, eating disorders / sleep disorders; stress and burnout,

#	MS	Initiative name	Description	Well-being area analysed
		smiles. How are you really? Reference: UNICEF (n.d.)	alternative. More generally, the campaign aims to draw attention to the impact of digitalisation on the lives of people in a poverty situation to shape policies in digital inclusion and well-being. This large-scale measure aims to support the mental health of all children and teenagers in Bulgaria through the use of an app, online platform and an online system. The app and online platform will also allow parents to gain information on how to support their child better emotionally.	bullying and online bullying, peer pressure. Social: Compromised family relationships, peer relationships.
9	BG	Equal Access to School Education in Crisis Conditions Reference: Bulgaria Ministry of Education and Science (2021)	Wat Wat is a platform of more than 80 organisations. The project aims to prevent interruption of the educational process and support inclusive education. It helps ensure conditions for effective education and mitigates the risk of dropout associated with remote learning. Its priority is to fully provide access for all students to a virtual classroom after seeing the challenges faced by the pandemic.	Digital divide: ensuring equal access for distance learning in an electronic environment. Cognitive: improving digital skills for teachers, innovative teaching and learning.
10	BG	National Program: Information and Communication Technologies (ICT) in the Preschool and School Education System (2021-2022) Reference: Ministry of Education and Science	The common goal of the national programme is to improve the quality and opportunities for e-learning in the system of preschool and school education. It plans on the expansion of the capabilities of the single support high-speed network for the needs of education and science, ensuring a high level of reliability of the services provided, ensuring the activity of a monitoring centre (observation in the centre of the use and wireless network performance, e-log statistics), expanding access to cloud-based ICT educational resources, purchase of innovative hardware and modern equipment.	Digital divide: improve infrastructure, internet connectivity, multimedia equipment.
11	BG	Education for Tomorrow Reference: Republic of Bulgaria: Ministry of	The project is aimed at opening of the education and the educational institutions to digital technologies by introducing new solutions for better training, so teachers can apply better and more effective approaches to each student, as well as increase motivation by encouraging self-study and self-assessment.	Cognitive: key digital skills (new technologies, online content and behaviour, programming, coding, to increase digital competence of students). Safety: cyber security, protection of intellectual property.

#	MS	Initiative name	Description	Well-being area analysed
		Education and Science (n.d.)		Digital divide: digital educational resources for students with sensory disabilities, autistic, DCP.
12	CZ	Cyber Prevention Catalogue Reference: Digi Koalice (n.d.)	The DigiKoalice is the Czech National Coalition for Digital Skills and Jobs where their main objective is to contribute to the development of digital literacy and digital skills. A cyber prevention "catalogue" provides an overview of programmes and methodologies for increasing the safe behaviour of children in the online space. It offers more than 140 programmes for pupils, dozens of programmes for teachers and materials, several methodologies and materials. Each program is aimed at a specific target group (e.g. primary schools, teachers) and they cover specific topics, all on security (safe behaviour on the internet, e-safety). These take place both in person and online.	Safety: assess risks associated with excessive spending of time on the Internet and in cyberspace, use technology consciously and responsibly. Mental: addresses cyberbullying, online addictions.
13	CZ	Strategy for the Education Policy of the Czech Republic Up to 2030+ Reference: Fryč et al. (2020)	This strategy views education as the acquisition of competences needed for an active civil, professional and personal life. It aims to create a safe environment by focussing on improving the well-being of both learners and educators and reducing inequalities in access to quality education.	Cognitive <ul style="list-style-type: none"> • Raise the level of competence in the use of digital technologies, computational thinking, and digital literacy. • Aims to educate in data literacy, communication and collaboration, media literacy, digital content creation, safety online, problem-solving, and critical thinking. Digital divide <ul style="list-style-type: none"> • Adapt education system so that it is able to adequately adapt to the dynamic environment and progress associated with new technologies and digitalization. • Methodical support provided to educators for the application of digital technologies in all disciplines across educational areas. • Promoting non-discriminatory access to quality education and creating conditions conducive to increasing digital competencies at school to close the digital divide among the learners. Mental <ul style="list-style-type: none"> • Aims to boost the well-being of educators in areas like motivation and burnout through

#	MS	Initiative name	Description	Well-being area analysed
				<p>school psychologists, training activities to develop skills for managing stress and conflict, sufficient time off, self-management, and time-management.</p> <ul style="list-style-type: none"> • Aims to improve the relationship learners have with school as well as raise awareness on issues regarding mental health such as anxiety, distress, and depression.
14	DK	<p>Strengthened efforts for digital education of children and young people (four initiatives)</p> <p>Reference: Eurydice (2023b)</p>	<p>Children and young people today live largely in a digital world, and their digital education must therefore be strengthened. To support this, the public-school agreement group decided on December 7, 2021, that a strengthened and national initiative for digital competences of children and young people should be implemented. The effort will consist of four interconnected initiatives:</p> <ul style="list-style-type: none"> -The Digital Traffic Club for Children and Young People -Development of teaching materials and lesson plans -School patrols for digital traffic safety -Communication efforts on offensive behaviour on the internet. 	<p>Social: School patrols for digital traffic safety, which aim to support a healthy digital culture in schools and educational institutions, where children and young people look out for each other and themselves on the Internet.</p> <p>Safety: Aims to equip children and young people to navigate the Internet safely and securely.</p>
15	DK	<p>Digital Growth Strategy 2025</p> <p>Reference: Jäkobsone (2021)</p>	<p>The policy objectives are as follows: working towards improving the digital skills of children, and in general from an early age, through testing a new subject on technology in primary and lower secondary education classes; Bridging the skills mismatch and offer relevant training and skills to support individuals' development in today and tomorrow's labour market; activities launched within this context aim to increase employment levels and satisfaction, and encourage the development of more digital talents in the STEM field (Science, Technology, Engineering, and Mathematics).</p>	<p>Digital divide, Cognitive</p> <ul style="list-style-type: none"> • Improving digital skills of children from an early age, Bridging the skills mismatch and digital literacy. • Aims to educate in data literacy, communication and collaboration, media literacy, digital content creation, safety online, problem-solving, and critical thinking. <p>Digital divide</p> <ul style="list-style-type: none"> • Adapt education system so that it is able to adequately adapt to the dynamic environment and progress associated with new technologies and digitalisation. • Methodical support provided to educators for the application of digital technologies in all disciplines across educational areas. • Promoting non-discriminatory access to quality education and

#	MS	Initiative name	Description	Well-being area analysed
				<p>creating conditions conducive to increasing digital competencies at school to close the digital divide among the learners.</p> <p>Mental</p> <p>Aims to boost the well-being of educators in areas like motivation and burnout through school psychologists, offer relevant training and skills to support individuals' development in today and tomorrow's labour market.</p>
16	DK	Secure Internet Centre	The Centre develops informative and educational activities and ensures the work of the helpline and hotline. Its main tasks are to educate and raise awareness about the safer use of Internet and provide an opportunity to report breaches and illegal content on the Internet. It aims to promote a safe online environment through age-appropriate privacy setting and increase awareness and digital skills in all Danish schools.	<p>Social: School patrols for digital traffic safety, which aim to support a healthy digital culture in schools and educational institutions, where children and young people look out for each other and themselves on the internet.</p> <p>Safety: Aims to equip children and young people to navigate the internet safely and securely.</p>
17	DE	Data Protection Certification for Educational Information Systems (DIRECTIONS) Reference: DIRECTIONS (n.d.)	The objective of the Data Protection Certification for Educational Information Systems (DIRECTIONS) project is the conception, implementation and testing of a data protection certification for school information systems. Providers must ensure that their systems meet all the requirements of the basic data protection regulation of the EU and should communicate this to educational institutions, school authorities, and municipalities.	<p>Safety:</p> <ul style="list-style-type: none"> • Aim to protect the personal data of learners. • Ensure the compliance with data protection of information system providers through a certification. • Creation of transparency and involvement of all actors.
18	DE	Teaching and learning in the digital world Reference: German Conference of Ministers of Education, 2021	This is a supplement to the strategy "Education in the Digital World." It places a focus on teaching and learning in the digital world. Also considering cultural change for further development of the school and vocational education system in Germany. It also looks to further education and training of educators and teachers. It aims to improve the digital competences of students such as: communicating successfully, finding creative solutions, act competently, think critically, work together.	<p>Social: addresses successful communication, finding creative solutions, work together, act competently.</p> <p>Cognitive: cognitive activation of learning processes.</p>
19	DE	Open Educational	The Open Educational Resources (OER) Strategy is a learning, long-term strategy where the objective of the Federal Ministry of Education and Research (BMBF) is to develop answers	Digital divide: expand and improve existing technical,

#	MS	Initiative name	Description	Well-being area analysed
		Resources Strategy Reference: Federal Ministry of Education and Research (2022)	and concepts to central questions about digital educational materials with all stakeholders. The OER aims to develop learning and research materials that are in the public domain, allowing free access. The goal is to move independently and confidently in digital environments both privately and professionally.	pedagogical, and organisational framework conditions. Social: culture of openness and cooperation, change in the attitudes of teachers and learners.
20	DE	Digital Pact for Schools Reference: BMBF (2022b)	DigitalPakt Schule (2019-2024) is a scheme under which the Federal government and the Lander aim to equip schools with high-quality technology, building on the strategy "Education offensive for the digital society". DigitalPakt Schule believes that schools must be able to access fast internet everywhere and should have appropriate display devices (such as whiteboards). The aim is to support schools (especially during the pandemic) in the design of lessons and in legally secure work with personal data. It also looks to ensure teachers are well qualified to use digital media.	Cognitive: digital competence to be able to use digital media independently and responsibly, convey digital skills. Social: collaborative learning through online platforms between students.
21	EE	Smartly on the Web Reference: Targalt internetis (n.d.)	The mission is dedicated to promoting smarter use of the Internet by both learners and parents. It seeks to empower children and young people to navigate the Internet safely by creating awareness raising materials, organising campaigns and information sessions. Aims to develop digital competences (related to risk assessment, decision taking, problem solving), learning to learn, and the management of feelings in relation to online engagement.	Safety: Aimed to increase awareness through training events in schools for learners, parents, educators about privacy, protection of your information and yourself, cyberbullying, sexting, and other risks. Mental: Raise awareness for educators and children about cyberbullying and how to respond to the issues and feelings that arise regarding it. Social: Provide life skills to learners so they can build positive relationships with family and friends, enhance participation in society, enhance social/cultural understanding, and produce and distribute their own positive online content reliability.
22	EE	Teacher's digital competence model Reference: Digipadevus (n.d.)	The digital competence model is part of the European Commission's DigComp. The digital competence models of learners and teachers valid in Estonia have been adapted. The digital competence model for teachers has several goals, most relevant perhaps being student empowerment and development of student's digital competence. Also includes an e-course to support the implementation of the learner's digital competence model in schools. To continue Estonia's e-success story the	Mental: cyberbullying, inclusive education; Social: communication, cooperation in digital environments; physical: preventing fatigue, eye relaxation exercise, palming. Safety: protection of digital devices, personal data and privacy, health and well-being.

#	MS	Initiative name	Description	Well-being area analysed
			competence model aims to generate interest in technology at an early age.	
23	IE	Webwise Reference: Webwise (n.d.)	Webwise is focused on raising awareness of online safety issues and good practice among students, their parents, and teachers. It aims to ensure that all stakeholders are familiar with safety issues connected to new technological advancements, are aware of the benefits and risks of the internet and are familiar with how to report inappropriate content or activities online.	Safety: navigate internet safely, address issues such as non-consensual image sharing, digital citizenship skills. Mental: cyberbullying.
24	IE	Digital Strategy for Schools to 2027 Reference: An Roinn Oideachais (2020)	The focus of this strategy is the well-being of learners, providing them with digital skills so that they can navigate the digital world in a confident and competent manner. It aims to support schools in understanding the relevant use of digital technologies in education, promote the use of digital technologies to facilitate communication, and support the development of high-quality resources to promote safe and responsible use.	Safety: Address concerns of the safe and ethical use of the Internet. To provide an effective response to online safety deems important to collaborate with different stakeholders including the Government, parents/guardians, educators, industry, and individuals themselves. Digital divide: Building digital skills and digital competency and addressing concerns about unequal access to new technologies to address concerns about the digital divide. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Social: Aim for learners to become confident and competent digital learners by improving their digital skills. Promotes communication with the school community by enhancing the digital skills of educators. Mental: provides information and support to schools, parents, and learners on online safety including cyberbullying. Provides support for the emotional well-being of learners by teaching them how digital technologies can impact them both positively and negatively.
25	EL	Legislation at national level: the New Computer Science Curricula and new courses	The new Computer Science curricula have a dedicated thematic unit, which addresses digital wellbeing at ISCED levels 1-3. These curricula contain extensive guidelines and resources in order to support both teachers and students. The courses of Physical Education and Home Economics contribute to the physical	Physical: Students learn about ergonomic issues, unhealthy eating habits, dehydration, reduction of physical activity, headaches, eye fatigue during the Computer Science course. They learn how to exercise and

#	MS	Initiative name	Description	Well-being area analysed
		Reference: Institute of Educational Policy (2022a, 2022b, 2022c)	well-being of the students by addressing the issues of exercise and personal hygiene/diet respectively.	sleep properly, emphasis on the importance of a healthy diet and hygiene. Mental, Cognitive, Social, Safety: all these categories are covered by the Computer Science course regarding digital well-being. However, well-being in general is addressed in all curricula of all courses.
26	EL, BG, CY, IE and IT	iWell Reference: KMOP (n.d.)	Aims to enhance the social well-being of primary school learners, aged 6 – 12 and support and build healthy and active citizens. The project aims to develop an alternative innovative training material, and to develop the competences of primary school educators in teaching life skills and digital literacy skills.	Mental: Empowering students to lead a healthy online life, cyberbullying, psychological well-being, digital mental-health, positive mental health, healthy behaviours, mental and physical illness; Safety: online harmful situations, cyberbullying. Social: social connectedness, factors in the physical social environment, social well-being.
27	ES	Educa en Digital Reference: Red.es (2021)	This initiative aims to ensure the well-being of schools as organisations, educators, and learners to by ensuring a smooth transition into a digital world. The initiative aims to provide devices and other technological equipment and quality connectivity to access online educational content and resources, adapt the competences of all educators to use ICT in their daily work, and carry out projects based on AI to assist educators, learners, and educational authorities.	Digital divide: Provide access devices and connectivity for vulnerable students; social: training in digital skills for teaching staff to facilitate relationship with students. Safety: Correct protection of citizens in the digital sphere.
28	FR	Ban on cell phone use at school and colleges Reference: Ministère de l'Éducation Nationale (2020)	The Ministry of Education established a ban on mobile phones and any other inter-connected devices (i.e. tablets) within schools and colleges, claiming that their use can impair the quality of learners' listening and concentration necessary for teaching and learning activities. Mobile phones can also reduce the quality of collective school life which is essential for the development of learners.	Cognitive: Improve exam results, learning, increase concentration; mental: reduce negative impact of social media, bullying; Social: allow for better social interactions between pupils' (essential for their development).
29	HR	E-Schools Project Reference: European Commission (2020c)	Aims to equip educators and learners with the IT skills that would help them to better compete in the global 21 st century and contribute to Croatia's economic development. It plans put in place ICT infrastructure and develop educational software for Croatia's primary and secondary schools as well as to improve teaching, learning and school administration.	Cognitive: Information and data literacy, troubleshooting, content creation; social: communication and cooperation.

#	MS	Initiative name	Description	Well-being area analysed
30	IT	Connected Generations Reference: Italian Ministry of Education (n.d.)	This initiative seeks to make the Internet safer for children and adolescents. The Centre provides information, advice and support to children, teenagers, parents, and educators who have experiences with the Internet and facilitating the reporting of illegal material online. The initiative also provides tips for schools on the positive use of technology.	Safety: Cyberbullying, well-being and the safe and positive use of digital technologies.
31	CY	Cypriot Safer Internet Centre – CyberSafety Reference : Cybersafety (n.d.)	This project aims to promote a safe online culture and to foster creative, innovative, and critical thinking in by establishing an awareness platform, a helpline, and a hotline. The challenges it aims to address cyberbullying, fake news and misinformation to illegal sexual abuse, racism and xenophobia.	Safety <ul style="list-style-type: none"> • Inform of the exposure to risks and threats found in digital environments to children, parents, and educators. • Provide support on issues in cyberbullying and hate speech to parents and children through the Helpline. Provide ethical guidelines on the use of artificial intelligence in teaching and learning for educators.
32	LV	Latvian Internet Centre	The Centre promotes a safer and better use of Internet and mobile technologies among young people. The Centre develops informative and educational activities, a helpline and a hotline. Its main tasks are to educate, inform and raise awareness in society about the safer use of Internet and provide an opportunity to report breaches and illegal content on the Internet.	Mental: Self-awareness, self-management. Social: Social awareness, relationship skills, responsible decision making.
33	LT	EdTech digital transformation of education - EdTech Project Reference: Ministry of Education, Science and Sports of the Republic of Lithuania (2022)	The policy measure aims to tackle the problem of the efficient use of EdTech and digital innovations in the education system with an aim to increase the efficiency of the system itself and the quality of learning outcomes.	Digital divide <ul style="list-style-type: none"> • Aims to increase the number of computers per student (ISCED 1-3) and the number of 16-74 aged people who used Internet in the past 3 months. • Aims to support Lithuanian citizens who live abroad and study online in Lithuanian schools. • EdTech Centre test-bed activities which supports testing out various EdTech solutions include examples of accessible EdTech (e.g., I-Series - a speech-generating device controlled by eye gaze). Safety: EdTech Centre offers teachers to use SELFIE4TEACHERS and use the results to register for digital competence courses relevant to their self-assessment results

#	MS	Initiative name	Description	Well-being area analysed
				(courses designed for the levels A1-C2).
34	LU	Digital Luxembourg: Digital4Education Reference: Digital Luxembourg (n.d.)	Digital Luxembourg catalyses innovation by supporting initiatives and kickstarting new ideas. Aims to prepare young people for a professional landscape of rapid digital change. Digital4Education focuses on six topics: infrastructure, eSkills, innovation, FinTech, e-Administration, and promotion.	<p>Mental: e-learning course addresses how to deal with technostress and stress, how to protect personal life through disconnection and which are the best practices like ensuring separation of personal and professional lives and using technologies to ensure this separation, how to have healthy habits in the digital world.</p> <p>Safety: There have been numerous trainings, as part of Infobesity, that are geared towards digital well-being on, for example, choosing what information to trust online and making decisions in an era of infinite digital information.</p> <p>Cognitive: Bee Creative addresses learning and adaptation to changing digital tools (robotics, programming) through the use of makerspaces and workshops for schools. It also aims to raise children's passion for technology through its workshops and show the resourcefulness of digital tools.</p>
35	HU	Digital Education Strategy of Hungary Reference: Digital Success Programme (2016)	The overall objective of this strategy is to ensure that public education can provide opportunities for acquiring the digital competencies required by society and the labour market. Aims to ensure that learners leave the public education system with appropriate digital competencies and media awareness, and that learning is supported by digital tools.	<p>Safety: Communication based on liberty, freedom for fear, and guaranteeing the protection of personal data; ensure value based learning and uncorrupted collection of experience resulting in a sound mental development.</p> <p>Digital divide: Improving infrastructure.</p> <p>Social: Addresses improving digital competence to improve employability, social welfare, and living standards.</p>
36	HU	Various policies in relation to digital education and well-being in digital education	1) The Public Education Strategy 2021-2030 has goals such as: broadband Internet for every school and developed school infrastructure, computer devices; Bring Your Own Device and related regulation, school security systems, how to use these systems it safely; Digital competences of pupils and teachers, educators; Digital pedagogical solutions for teachers, for example, motivating	Mental/Social: School psychologists perform duties that are defined by law, for example: the development of student's mental health protection, any other problem, family problems, serious psychological problems,

#	MS	Initiative name	Description	Well-being area analysed
		Reference: Eurydice (2023c)	<p>them to use digital tools, supporting the teachers in their work (via learning management systems); Public education administration; Pupil competence measurement systems.; special educational needs and disadvantaged pupils. National core curriculum and teaching subject curriculum was renewed/updated introduced in 2020. Initial teacher education programmes were updated to include the development of pupils' and teachers' digital competences.</p> <p>2) VET 4.0. strategy (2019-2030) was started back in 2019 and went through an update last year. There is a specific action plan, including 11 objectives, 42 interventions and 58 key actions. There is a monitoring system which tracks the implementation of all the measures.</p>	<p>also problems related to cyber-space.</p> <p>Cognitive: Teacher training system, equipped with the knowledge and tools related to digital skills.</p>
37	MT	<p>Social and Emotional Learning for Mutual Awareness (SELMA) (SELMA Hacking Hate)</p> <p>Reference: Digital Literacy Malta (n.d.)</p>	<p>Social and Emotional Learning for Mutual Awareness (SELMA) is an EU-wide project that aimed to tackle online hate speech by promoting mutual awareness, tolerance, and respect. The project is a response to the growing issues of online hate speech and aims to complement existing initiatives to regulate, monitor or report online hate speech.</p>	<p>Mental</p> <ul style="list-style-type: none"> • Aimed to empower young people to become agents of change in improving online hate for them and around them by further understanding what it is and how to prevent it. • Aimed to provide educators with activities, resources, and lesson plans to understand online hate speech, the impact it has on a person, and help build strategies to disrupt online hate speech to improve the well-being of learners. <p>Social</p> <p>Aimed to improve social awareness and relationship skills of learners regarding issues like online hate speech.</p>
38	NL	<p>School policy for smartphones</p> <p>Reference: Pijpers & Dondorp (2023)</p>	<p>This is a guide that schools are proposed to use when implementing the new law on the banning of smartphones that will come into effect in 2024. The aim is to enhance learners' well-being and learning abilities by only allowing mobile phones when it is necessary for the content of the lesson, with exceptions for medical reasons, or disabilities. Each school needs to design its own policy according to their needs.</p>	<p>Cognitive: Aims to improve cognitive ability, concentration, and motivation of learners by removing digital distractions at school.</p> <p>Mental: Aims to improve the mental well-being of learners at school by removing smartphones at school and therefore removing the constant use of social media that could have negative impacts.</p> <p>Social: Encourage social contact during school time: talking together, playing a game, drawing together. By removing</p>

#	MS	Initiative name	Description	Well-being area analysed
				smartphones, the aim is for learners to meet each other and practice their social skills.
39	NL	Continued Digitalisation Programme Reference: MBO Digital (n.d.)	The three main objectives of the programme are: 1. Innovating education (helping vocational education keep pace with the developments of digitalisation in other professions.) 2. Optimal access to the labour market and further education (supporting people in the transition from secondary school to further education) 3. Developing public education infrastructure for lifelong learning, supported through digitalisation.	Cognitive: defining and incorporating digital citizenship skills content into education programs, and building both student and teacher digital competences
40	NL	Moving Education Reference: Npuls (n.d.)	The aim of this policy is to develop a toolkit, including common facilities, standards, portals, network facilities, process agreements, and implementation support to facilitate the agile organisation of educational provision develop a set of tools, including standards, agreements, and licensing models, as part of the sector-wide technological infrastructure, and implementation support for the sector-wide flexible and accessible provision of digital educational resources.	Digital divide: leveraging digitalisation to improve the quality of education; making technology accessible so that all learners can benefit from it; improving connections to the labour market for students of all backgrounds.
41	NL	Acceleration plan: educational innovation with ICT Reference: Acceleration Plan (n.d.)	The Acceleration Plan recognizes that digitization offers great opportunities for higher education in the Netherlands and that it can contribute to the quality of education. The mission of the Acceleration Plan is to create space within the institutions and in collaboration with other universities and colleges to take substantial steps in the field of digitization in higher education. The four-year programme runs from 2019 to 2022 and is based on three ambitions: 1) Improving the connection to the labour market; 2) Stimulating the flexibility of education; 3) Smarter and better learning with technology.	Cognitive, Digital divide: supporting teachers and other people in professional practice adapt quickly to new technological developments.
42	AT	Digi.check Reference: Digitale Kompetenzen Informatische Bildung (n.d.)	Digi.check measures digital competences of students and teachers through an online test. It focuses on students' and teachers' self-assessment but also allows educators and trainers to plan lessons or seminars. It highlights the fact that digital competences are critical to understand the benefits and risks of digital technologies in society and private life that enable responsible participation and engagement in the digital culture. There are four digi.checks and each one is based on each digital competence level (for learners or educators).	Social: IT and media literacy for learning and participating in society, communication and cooperation. Safety: data protection and data security, malware.

#	MS	Initiative name	Description	Well-being area analysed
43	AT	8-Point Plan for Digital Learning Reference: Cedefop, & ReferNet (2025)	<p>The purpose of the initiative is to create the pedagogical and technical conditions for IT-supported teaching and to enable all learners to get access to digital education at the same conditions. The initiative also aims to further the development of digital skills of learners and educators, taking into account different learning styles.</p> <p>The digital transformation of Austrian schools is carried out by 8 main points of action: 1) creating a digital school portal (“Bildungsportal”) to improve communication between learners, educators, and parents; 2) standardisation of the platforms; 3) continuing education for educators, by developing a Massive Open Online Course and further training courses; 4) aligning Eduthek (a platform for digital learning content) with curricula; 5) develop a seal of approval for learning apps to provide parents, educators, and learners with guidance in the selection of innovative products.; 6) expanding the basic IT infrastructure at schools; 7) develop digital devices for learners to ensure access to their own learning devices; 8) develop digital devices for educators and provide workrooms for educators.</p>	<p>Digital divide:</p> <ul style="list-style-type: none"> • Aims to prepare all educators for digital and digitally supported teaching and learning through Massive Open Online Courses. Content in these trainings will include organisation of distance learning, use of platforms, and digital content or communication with parents and school development. • Aims to expand the school IT infrastructure, and devices for learners and educators. <p>Social: Aims to create a digital school portal (“Bildungsportal”) to improve communication between learners, educators, and parents.</p> <p>Safety: With the creation of a seal of approval for learning apps to provide guidance to education stakeholders in the selection of new products.</p>
44	PL	Online Safety Standards for Educational Institutions Reference: Bochenek et al. (2018)	<p>The Acceleration Plan recognises that digitisation offers great opportunities for higher education in the Netherlands and that it can contribute to the quality of education. The mission of the Acceleration Plan is to create space within the institutions and in collaboration with other universities and colleges to take substantial steps in the field of digitisation in higher education. The four-year programme runs from 2019 to 2022 and is based on three ambitions: 1) Improving the connection to the labour market; 2) Stimulating the flexibility of education; 3) Smarter and better learning with technology. It aims to increase the level of online security of educational institutions. It proposes that schools organise the rules and procedures to enable the preventive and corrective actions in relation to cyber security. Aims to increase the level of safety of school members, including youth, educators and parents.</p>	<p>Safety: Data theft, access blocking, all kinds of computer viruses that destroy resources, risky behaviour.</p> <p>Mental: Cyberbullying, internet abuse, build sense of self-esteem.</p>
45	PT	Holidays: a healthy techno place!	<p>The aim of the campaign is to raise awareness among children and young people about the healthy use of technology during the school holidays. It aims to develop children’s socio-emotional skills, help them self-regulate online</p>	<p>Mental: mental health, self-regulate behaviour.</p> <p>Physical: Sleep, daily hygiene, posture.</p>

#	MS	Initiative name	Description	Well-being area analysed
		Reference: SeguraNet (n.d.)	behaviour, and be aware of unsafe and violent online phenomena.	Social: Social skills within family, pro-social behaviours online.
46	RO	The Strategic Initiative for Digitization of Education in Romania (SMART-Edu) Reference: SMART-Edu (2020)	This strategy aims to improve digitalisation and ensure access to quality education in the digital age in Romania. It plans on developing digital skills at all levels, supporting digital training of teaching staff, improving digital infrastructure to reduce connectivity gaps, and promote initiatives on online safety, data protection, and IT ethics.	Digital divide: Create digital educational tools, reduce connectivity gaps (connecting to the Internet, creating internal networks, providing equipment, ensuring technical support). Safety: Initiatives on online safety, data protection, cyber hygiene, IT ethics.
47	SI	The Strategic Initiative for Digitisation of Education in Romania (SMART-Edu) Reference: SMART-Edu (2020)Centre for a Safer Internet SAFE.SI	Safe.si operates as a national point for raising awareness among children and adolescents about the safe use of the Internet and mobile devices, how to be protect them from online risks and suggest a safe responsible use of the web and other digital technologies.	Safety: Protect risks and safe and responsible use of the web and other new technologies. Mental: Cyberbullying, online addiction.
48	SK	National concept of child protection in the digital space Reference: Resolution of the Government of the Slovak Republic (n.d.)	Aims to inform and detail the measures on how to protect children in the digital space. Supports the healthy psychological, physical, and moral development of children and their protection online. This is done by carrying out measures in the field of prevention, raising awareness, suppression of cybercrime, education, and cooperation at the national and international level.	Safety: Privacy and data, age-appropriate information about tools, illegal and inappropriate content. Mental: Assistance for victims, effective help and support to all stakeholders, cyberbullying, hate speech, trolling. Physical: Healthy physical development.
49	SK	Evening school	Safe Internet for Safe Childhood is a platform of the National Coordination Center for Combating Violence against Children (NKS). One of the initiatives is called evening school for parents which is a series of monthly events where experts explain in an accessible and interactive way, digital phenomena that children encounter daily such as hoaxes and	Safety: use of Internet and technology so benefits outweigh the negatives, misinformation - how to recognise hoaxes and conspiracy theories. Mental: cyberbullying, risks and benefits of videogames, addiction.

#	MS	Initiative name	Description	Well-being area analysed
			disinformation, cyber-bullying and safety on children's online data.	
50	FI	ArboEduArboEduArboEdu Reference: Global Education Park Finland (n.d.)	ArboEdu is a mobile application that serves as digital support for pedagogical work. It enables educators to implement part of the teaching out of the ordinary study environment and activating the learners mind and body. The application has a function where educators can create custom-made tasks and learning routes outdoors. Learners are able to navigate from task to task with a mobile device.	<p>Cognitive: Aimed to activate and enhance learning out of the ordinary study environment through the use of the application, providing a stimulating environment for the learners. The application provides activities so learners can stay focused and motivated.</p> <p>Physical: Aimed to provide physical movement with outdoor tasks and in turn improve the learner's physical well-being.</p> <p>Social: Enhance the group working skills of learners since most of the tasks conducted by the application consist of group work.</p>
51	SE	National Digitalisation Strategy for the School System Reference: Skolverket (2022)	Focuses on learners' digital competence and the use of learning resources in teaching. Aims to empower educators to use digital learning resources that are appropriate and secure and stimulate the learning of learners.	<p>Digital divide: Aims to ensure equal access to digital tools and resources with the aim of improving education and making operations more efficient.</p> <p>Cognitive: Aims to provide learners in pre-school and primary education with the opportunity to develop a critical and responsible approach to digital technology to be able to identify opportunities, understand the risks and to value information.</p> <p>Psychological: Aims to raise awareness on the positive and negative mental effects of digital technology (e.g., cyberbullying, isolation, radicalisation).</p> <p>Safety: Aims to raise awareness and develop digital skills so learners can navigate the Internet safely.</p>

Annex 3. List of technologies used in school settings

Table 1. Technology used in school settings

Category	Specific examples	Relevant education levels	Purpose of use
Mainstream embedded technologies			
Smartboards and projectors	SMARTboard, mobile SMART kapp iQ panel	Secondary education	<ul style="list-style-type: none"> Support trainers to differentiate class proficiency (Cabus et al., 2017); Facilitate class activities, e.g., educators' use to present visual information/images, learners' use to present group responses (Passey, 2016).
Digital platforms, virtual learning	Online learning platforms, virtual classrooms	Secondary education	<ul style="list-style-type: none"> Record physical fitness measures and generate personalised fitness reports (Pluim and Gard, 2018).
		Secondary education and IVET	<ul style="list-style-type: none"> Facilitate remote access to trainers teaching and teaching materials, for example, providing online resources, enabling virtual classrooms and creating communication channels between learners and trainers (Carretero et al., 2021; Pedone, 2021; Walters et al., 2022).
Assistive technologies	Text-to-speech tools, word prediction, eye-gaze assistive technology	Secondary education	<ul style="list-style-type: none"> Enable different methods for learners to participate in the classroom (e.g., supporting writing, reading, and/or communication); Personalise learning environments, enable tailored learning styles/materials (CEDEFOP, 2019; Stathopoulou et al., 2019; UNESCO, 2023).
Social networks	Edmondo (for educational purposes), Facebook	Secondary education	<ul style="list-style-type: none"> Sharing educational resources (Altinay et al., 2020); Social networks may be used in school settings for non-educational activities (O'Neill, 2023); Social media is highly related to higher educational attainment (OECD, 2019c).
Digital games, gamified apps	Wii Sport, Xbox Kinect, subject matter focused games	Upper Secondary Education	<ul style="list-style-type: none"> Integration into the curriculum of various subject matters (Physical education, STEM, humanities etc.) (Giannoutsou et al., forthcoming); Improve learner motivation and engagement (Wallace et al., 2022).
Supporting hardware/other digital technologies	Computer (laptop/desktop), mobile phones, tablet, video camera	Secondary education and unspecified education levels	<ul style="list-style-type: none"> Digital devices required to access digital platforms/ educational activities such as digital collaborative games (Gigantesco et al., 2019); Utilised by learners to access the internet for schoolwork (Muñoz- Miralles et al.,

Category	Specific examples	Relevant education levels	Purpose of use
			2014).
Novel and emerging technologies			
Well-being enhancement apps, Digital Self-Control Tools (DSCTs)	Tita (mindfulness-based practice), computerised Cognitive Behavioural Therapy (cCBT)	Upper secondary	<ul style="list-style-type: none"> Support mindfulness practices as a protective factor for school-burn out, psychological issues, and improve satisfaction and happiness (Lahtinen & Salmivalli, 2020).
		IVET	<ul style="list-style-type: none"> Offer cCBT to support learner well-being, and signpost resources (Kuusmanen et al., 2018).
Drones	Air:bit drone kit	Primary and secondary education	<ul style="list-style-type: none"> Facilitate collaborative learning with parents and/or peers; Engage learners in engineering subjects; Provide experience with digital hardware (drone) and software (coding drone's flight) (Schuchter, 2021).
GPS	Smartphone/GPS receiver and GPS application	Secondary education	<ul style="list-style-type: none"> Geocaching: outdoor activity for learners to use coordinates and hints to find 'treasure'; Used for subject-specific and/or interdisciplinary learning/problem-solving, reinforcing curricula learning, and engaging learners (Zemko et al., 2016).
Artificial intelligence (AI), robots	Educational robotics, e.g. Ozobot, Floor turtles (Bee- and BlueBot by TTS-Group) Lego EV3 robot; black box algorithms	Primary education	<ul style="list-style-type: none"> Robotics used as mobile descriptors to help learners understand physical or conceptual paths (e.g., digestive systems or language, respectively); Foster computational thinking through coding (Di Battista et al., 2020); Support STEM learning; Support autistic learners' emotional regulation and socialisation skills (Newbutt et al., 2022).
		Secondary education	<ul style="list-style-type: none"> Support understanding abstract concepts (e.g., algebra and geometry) and introduce reflects on these topics; Introduce basic/advanced programming and support computational thinking (Di Battista et al., 2020); Support learners with special educational needs (Di Battista et al., 2020; Newbutt et al., 2022).

Category	Specific examples	Relevant education levels	Purpose of use
Extended reality (virtual, augmented, mixed reality)	ExerCube, Polar HR monitor, Samsung Gear VR	Primary and secondary education	<ul style="list-style-type: none"> • Augmented Reality use in the context of Game Based Learning: Improve learning performance, learners' motivation/engagement, and in-class collaboration integrated in appropriate pedagogical approaches (Pellas et al., 2019);-
			<ul style="list-style-type: none"> • Improve learners' primary school learners' physical fitness (Ketelhut et al., 2022); • Educational virtual field trips for secondary level learners (Petersen et al., 2020).
Blockchain technologies	Edmodo Content Manager	All education levels	<ul style="list-style-type: none"> • Issuing/securing certificates, storing a verified e-Portfolio, verifying multi-step accreditation, automatic recognition, and transfer of credits, managing intellectual property (Camilleri et al., 2017); • Support trainers' content management, online collaboration and research skills (Altinay et al., 2020).

Source: JRC based on the sources indicated in the table

Annex 4. Technology design elements relevant to WBDE

The table below provides design elements relevant to the well-being of learners and/or educators. It also provides information on the education level and socio-economic or cultural background relevant to the design category. This specifies the education level that the relevant literature within the category was focused on and, where available, additional findings related to socio-economic or cultural backgrounds of the population of interest. As such, the absence of a specified education level does not necessary indicate that the category is irrelevant for other education levels.

Table 2. Technology design elements relevant to the well-being of learners and/or educators

Design category	Specific design elements noted	Description	Education level, socio-economic or cultural background relevance
Data privacy (ethical, transparent approach)	Data privacy features embedded into technology design	'Data protection by design and default' – embed data privacy factors such as anonymisation, pseudonymisation, and encryption (Carmel, 2016).	Upper secondary education
		Ensure GDPR compliance (UNESCO, 2023).	Primary and secondary education
		Children and their parents should be empowered to control how AI technologies use their data (e.g. clear privacy statements tailored for children and privacy-by-design measures) (Charisi et al., 2022).	Children and young people, unspecified education levels
	Data tracking, sharing, and algorithm design, (big data collection, hyper-nudging, targeted advertising, social media algorithms)	Big-data collection from learners' use of digital technologies has commercial and research uses (Casey et al., 2017; Chanenson et al., 2023; Gard & Lupton, 2016; Pluim & Gard, 2018).	All education levels, design element mostly considered in relation to schools as organisations. Learners from more marginalised socio- economic or cultural groups are more likely to be at risk of harm from exploitative forms of data tracking, sharing, and algorithm design
		Big data driven decision techniques including algorithmic design, can guide user choices and behaviours (O'Neill, 2023; Yeung, 2017).	
		Algorithms can personalise digital experience such as search results for users (Richardson and Milovidov, 2019).	
Transparent and non- binary privacy/ data sharing options	Data sharing should allow parents to select what data they want to share and for what purposes rather than a binary opt-in or opt- out process (Carmel, 2016).	Upper secondary education	
Social interactions in the digital education	Interactive elements	Interactive elements such as the learners' use of mobile devices to engage with multi-player quizzes can improve engagement (Schuchter, 2021).	Primary and secondary education

Design category	Specific design elements noted	Description	Education level, socio-economic or cultural background relevance
ecosystems, (e.g. between learners and educators)	Availability of private forums on online learning platforms	Learners may reach out for trainers' help/ support more through a private forum (e.g., one-to-one virtual meeting, online message, phone calls) during remote learning (Willermark and Islind, 2022).	Secondary education
Communication with/between parents and educators	Personalised reports and recommendations	Digital platforms can enable an easy way to generate and provide feedback and recommendations to parents (Kuusimäki et al., 2019).	Primary and secondary education
	Adaptability of digital communication channel to suit purpose	Communication of study-related matters via digital platform perceived as wanted and useful, but, for sensitive issues, more appropriate face-to-face or by phone call (Kuusimäki et al., 2019).	Primary and secondary education
Empowerment, self-expression, digital citizenship	User-friendly authoring tools	Intuitive and user-friendly authoring tools that do not require a high level of programming ability to enable trainers to create and adapt content more easily (Pellas et al. 2019).	Primary and secondary education
	Context of deployment	Local social and cultural conditions, where digital products will be used need to be accounted for, moving away from cultural assumptions that tend to be North American- centric. Any impacts of digital technology are context specific and tied by socio-technical factors (Facer & Selwyn, 2021).	Theoretical literature: addresses education in general. Cultural assumptions engrained in design may have unknown/unintended implications for users and reinforce the digital divide.

Design category	Specific design elements noted	Description	Education level, socio-economic or cultural background relevance
	Support of autonomous motivation	Social and material interaction with digital interface and how it may shape and/ or reinforce power dynamics and social dynamics for users must be considered (Fawns, 2022).	Individuals from socio-economically disadvantaged backgrounds are more at risk of adverse social/material and digital interaction outcomes
		Tailored content, personalised feedback (Kuosmanen et al., 2018).	IVET education for early school leavers aged 15-20 years
	Self-directedness	Push notifications, gamification, and goal setting can support learners achieve goals (Chacko et al., 2016).	Parents of children with disruptive behaviour disorders in socio-economically disadvantaged communities
		Content selected for learner and presented in a logical way, prompts such as break reminders or safety tips for using digital devices (Hietajärvi et al., 2022).	Primary and secondary education
Social support	Digital support groups	Online support groups to exchange emotional support and information (Chacko et al., 2016).	Parents of children with disruptive behaviour disorders in socio-economically disadvantaged communities
Accessibility	Improving visual accessibility	Ability to enlarge text for learners with visual impairments (Passey, 2016).	Primary and secondary education
	Removal of physical barriers for learner interaction	Mobile digital devices can remove potential physical barriers for learners (e.g., for wheelchair users) compared to digital technologies (e.g., interactive whiteboards that may not be accessible to all) (Passey, 2016).	Secondary education
	Personalising learning environments	Inclusive digital technologies can adapt learning environment for the user, e.g., reducing information that may cause sensory overload or distraction, offers visual cues for instructions, portable checklists, and reminder alarms (Di Battista et al., 2020).	Primary and secondary education, learners with special needs and learners with migrant backgrounds

Design category	Specific design elements noted	Description	Education level, socio-economic or cultural background relevance
	Personalising content	Tailoring content to align it with school system, pedagogical targets, and individual's performance (Newbutt et al., 2022).	Lower secondary education, autistic learners
	Embedding assistive features	Accessibility features embedded in platforms/devices (e.g., text-to-speech tools/word prediction on smartphones and computers (UNESCO, 2023).	Primary and secondary education
	Interface Language	Accessibility to online content in languages, other than English, translation and multilingual learning tools (CEDEFOP, 2019; Richardson and Milovidov, 2019).	Unspecified education level (Richardson and Milovidov, 2019) and IVET (CEDEFOP, 2019) Potential groups of vulnerable VET learners include migrants, refugees, learners with low socio- economic background, learners with special educational needs.
	Availability of software/hardware	Consideration of availability (e.g., will school/learners have access to certain digital technologies? (Zemko et al., 2016).	Secondary education
Learner support	Subject-specific and/or transversal skills support	Work-based learning can be supplemented with technologies that facilitate remote training (e.g. immersive experiences facilitated by VR) (Pedone, 2021). Opportunities to develop subject-specific knowledge and range of skills, enhance access to resources, and create opportunities for learners to experience a variety of learning practices (Timotheou et al., 2023).	IVET, learners with special education needs (who might require additional support whilst learning) and socio-economically disadvantaged learners (who might be more likely to have family environments that are not conducive to studying at home) and might find distance-learning particularly challenging and, in some cases, drop-out, as a result. (Pedone, 2021). Unspecified education level (Timotheou et al.,

Design category	Specific design elements noted	Description	Education level, socio-economic or cultural background relevance
			2023).
	Interface design	Interface design must balance the need to look engaging with avoiding user distraction; Thoughtful interface design choices such as avatar design and game appearance shape user experience (OECD, 2019b) (Pedone, 2021).	Primary and secondary levels
	Interoperability	Ability of different digital technologies to work together with other software applications and/or hardware devices. For example, using mobile phones to access virtual learning environments (Passey, 2016; Schuchter, 2021). Multi-device use (i.e. the use of two or more devices simultaneously) needs to be better understood (Monge Roffarello and De Russis, 2021).	Primary and secondary levels
	Integration of digital technologies with physical environment	Technologies can integrate with physical spaces via sensors, IoT devices, and AR (Gennari et al., 2022). At home, learners need the appropriate environment to access digital technologies (e.g. somewhere quiet to attend an online class) (Fawns, 2022). In school, educators need to find appropriate physical spaces to safely and effectively deploy technologies (Zemko et al., 2016).	Theoretical literature: addresses education in general, no specified level
Other	Novelty Factor	Digital technology's novelty factor can cause distraction (Pellas et al., 2019) but also motivation (Wallace et al., 2022).	Secondary education

Source: JRC based on the sources indicated in the table

Annex 5. Emerging WBDE practices analysed

This Annex synthesises the analysis of emerging WBDE practices based on desk research and interviews conducted. Starting with an overview of the emerging practices, it reports on the key emerging guiding principles for WBDE enhancing practices, summarises the key enablers and barriers identified by the eight interviewed practice actors and includes a list of the practices analysed. These learnings have been a key input for the definition of the Model of Emerging Practices presented in the next section.

A5.1 Overview of the practices

Geographical distribution. The collected practices consisted of four national (implemented in Belgium, Germany (2), and Lithuania) and 19 EU-level and international practices, involving actors from 23 different EU-27 MS. Notably, no practices were identified specifically for Ireland, Latvia, Luxembourg, or Slovakia.

Education level. The most frequently targeted education level was lower secondary with 16 practices; followed by upper secondary with 13 practices, then primary with 7 practices. The least targeted level was Initial Vocational Education and Training, with only two practices. Out of the 23 practices, five practices encompassed all levels within the study scope - primary, lower secondary, upper secondary, and IVET.

Well-being categories. Safety was the most frequently identified targeted WBDE category, with 19 practices (83%) specifically targeting it. The most commonly addressed safety aspects included cyberbullying awareness and prevention, data privacy, and navigating harmful content (e.g., disinformation and inappropriate content). The next most frequently targeted WBDE categories were cognitive (13 practices), psychological (12), and social well-being (12). The digital divide and physical well-being were the least frequently addressed WBDE categories, with only five and three practices, respectively.

School actors. 21 of the 23 practices (91%) targeted educators and learners each. Parents were the next most commonly targeted school actors (78% of practices), followed by other actors (57%) which included actors such as researchers, youth workers, education authorities, and policy makers. School leaders and schools as organisations were identified as targeted school actors in under a third of the practices and EdTech providers were identified as targeted actors in four practices (17%).

Resources. Erasmus+ funding was the most frequently cited funding source, supporting ten practices (43%). Other EU funding sources identified included the Media Literacy for All Programme (2021-2027), Citizens, Equality, Rights and Values Programme (2021-2027), and Horizon 2020. Other identified funding sources included international organisations (e.g., Council of Europe and UNICEF), private companies (e.g., Google and the LEGO Group), and national or local governments. Financial data was only readily available for 11 practices, with budgets ranging from 145.153 EUR up to 3.18 million EUR. Human resource data was also limited but identified team numbers ranged from teams of three to more than 90 members.

A5.2 Enablers and barriers reported by practices

This section consolidates the findings from the interviews with the representatives of eight WBDE practices (*3D4VIP*; *DIMELI4AC*; *ENDING*; *Facts4AI*; *RITEC*; *Social Media Literacy for Change*; *SOLIS*;

and ySKILLS). Given their limited number, although these can't be generalised, they could provide insights into relevant elements for the design of future WBDE-enhancing practices.

Reported **enablers** include the support from school leadership which facilitated cooperation from educators and the integration of the practices within the school settings; input from pedagogical advisors and or external experts (e.g. in data privacy and media literacy) providing critical support equipping educators with the knowledge needed to tackle challenging digital issues; involving learners and educators in the design process to allow tailoring resources to their unique educational contexts.

Barriers included competing curriculum priorities reducing the time and resources available for WBDE (extra-curricular) practices; educators' digital skills gaps; lack of digital resources, such as reliable internet connectivity or access to digital devices; the reliance on voluntary participants which represented a challenge for the practice continuity; the difficulty of adapting digital education materials to fit different cultural and educational contexts; and the rapidly changing digital landscape which required continuous adjustment of the content to remain relevant which was unaffordable withing the projects' budget and scope.

A5.3 List of emerging WBDE practices analysed

Table 3. List of emerging WBDE practices

#	Practice name (EN)	One sentence description	Practice description (key aims, objectives and actions)	Well-being in digital technology categories targeted
1	Būk Interneto Genijus / Interland GEO scope: LT EDUC. LEVELS: Primary (ISCED 1), Lower secondary (ISCED 2) SCHOOL ACTORS: Learners; Educators; Parents	The "Be Internet Awesome" educational programme by Google teaches digital citizenship and safety basics, enabling children (ages 7–12) to confidently explore the online world with the guidance of teachers and parents, and includes Interland, an interactive game that teaches children digital citizenship and online safety skills	The programme aims to equip children with essential digital citizenship and safety skills to safely explore the Internet, fostering learning, creativity, and growth. It provides structured lessons, resources, and activities for teachers, meets national standards, and supports parents in extending digital literacy at home. It focuses on skill-building rather than simply addressing online threats, fostering open dialogue about digital safety and encouraging children to ask questions without fear. The goal of the practice was to reach all Lithuanian schools and impact 10,000 children by the end of 2021.	<ul style="list-style-type: none"> • Psychological: engaging lesson plans about cyberbullying and online cruelty, how to handle mean behavior. • Safety: through interactive games students learn about privacy and security; phishing and scams; inappropriate content; security (incl. passwords, type of information to refrain from posting). • Social: maintaining positive communication on the Internet, understanding in what situations adult support is needed, online reputation.
2	KID_ACTIONS	KID_ACTIONS (Kick-off preventing and responding to children and	KID_ACTIONS aims to reduce cyberbullying by implementing an interactive Digital Education Platform and Educational	<ul style="list-style-type: none"> • Safety: the project empowered young people to react effectively against

#	Practice name (EN)	One sentence description	Practice description (key aims, objectives and actions)	Well-being in digital technology categories targeted
	<p>GEO scope: IT</p> <p>EDUC. LEVELS: Lower secondary (ISCED 2), Upper secondary (ISCED 3)</p> <p>SCHOOL ACTORS: Learners; Educators; Parents; Schools as organisations</p>	AdolesCent cyberbullying through innovative monitoring and educational technologies) was a two-year project that aimed to address cyberbullying among teenagers aged 11-19 through interactive education and gamification within formal and non-formal learning settings.	Toolkits, launching an awareness campaign, and organising European forums to unite policy makers, researchers, and practitioners. The project's approach focuses on improving young people's understanding of cyberbullying and empowering them to respond effectively, all while fostering a co-creative, evidence-based approach that strengthens cross-border and cross-sectoral collaboration on the issue.	cyberbullying through a Digital Education Platform including an advanced social media monitoring system.
3	<p>Digital Wellbeing @ School</p> <p>GEO scope: IT, PT, CY, TR, ES</p> <p>EDUC. LEVELS: Lower secondary (ISCED 2), Upper secondary (ISCED 3)</p> <p>SCHOOL ACTORS: Learners; Educators; Parents; EdTech providers; School-leaders</p>	Digital Wellbeing @ School aimed to equip teachers with good practices and promote digital well-being at school through the development of a digital well-being framework, a training course and platform for educators, a digital well-being learning activity repository, and an online game.	The project aims to support teachers in promoting digital well-being through the development of a European Framework for Digital Wellbeing at School, an online training course and platform for educators, a repository of learning activities, and an interactive digital well-being game. These resources collectively enhance teachers' ability to guide students in navigating digital spaces healthily and responsibly, ultimately fostering improved awareness and practices in student digital well-being.	<ul style="list-style-type: none"> • Cognitive: Developing students' awareness of fake news, enhancing skills in identifying and understanding mechanisms behind misinformation. • Digital divide: Addressing digital inequalities, particularly focusing on accessibility for learners with disabilities. • Safety: Promoting privacy awareness and helping students identify best practices for digital content sharing and privacy protection.
4	<p>#future fabric: demokratie digital denken</p> <p>GEO scope: DE</p> <p>EDUC. LEVELS: Lower secondary (ISCED 2), Upper secondary (ISCED 3), Initial VET (ISCED 2-3)</p> <p>SCHOOL ACTORS: Learners</p>	The project aims to provide young people with information about democracy in the digital age and media skills in order to ensure safety and protect digital data.	The project supported young people in addressing digital challenges through educational activities, workshops, and specialist training courses. It hosted conferences on digital media's role in democracy, raising awareness of the opportunities and risks in the digital realm. The initiative aimed to equip participants with knowledge, inspire reflection, and provide actionable insights for promoting democratic education in a digital age.	<ul style="list-style-type: none"> • Social: Workshops provided on democratic participation and empowering democratic values in digital platforms. • Digital divide: Addressed inequalities in digital access and skills

#	Practice name (EN)	One sentence description	Practice description (key aims, objectives and actions)	Well-being in digital technology categories targeted
5	Internet Matters GEO scope: International EDUC. LEVELS: All within the study scope SCHOOL ACTORS: Learners; Educators; Parents	Internet Matters supports parents and professionals with comprehensive resources and expert guidance to help them navigate the ever-changing world of child internet safety.	Internet Matters focuses on three core goals: supporting parents and caregivers in all aspects of children's digital well-being, offering tailored guidance to vulnerable young people and their support networks, and uniting market leaders and experts with a shared mission of promoting online safety. Key initiatives include launching the Digital Matters platform, providing safety reports on topics like TikTok and digital well-being, participating in research on self-generated child sexual abuse material, and creating interactive guides. The anticipated outcome is to ensure that media literacy receives dedicated focus, ultimately supporting the UK's aim to become the safest digital environment for children and families.	<ul style="list-style-type: none"> • Cognitive: Offering expert tips to help combat fake news, misinformation, and manage screen time. • Psychological: Providing guides on preventing and dealing with online hate. • Safety: Sharing strategies to prevent exposure to inappropriate content, manage cyberbullying, online reputation, radicalisation, privacy, and blocking adult content. • Social: Offering resources on sexting, with recommended tools for lesson integration on this topic.
6	Play It Smart GEO scope: BE EDUC. LEVELS: Not specified SCHOOL ACTORS: Educators; Parents	Play It Smart is a free platform offering information, tips, and inspiration on safe and responsible gaming for parents, grandparents, educators, and mentors.	Play It Smart seeks to enhance understanding of video gaming among (grand)parents, teachers, and mentors by providing accessible tips on safe and responsible gaming. Key actions include offering advice on privacy protection for young players, explaining the educational benefits of video games, and encouraging adults to engage with children in gaming. The platform also features a search function to address specific queries. The anticipated outcomes are improved knowledge of video gaming, increased engagement in healthy gaming practices, and strengthened online privacy for young gamers.	<ul style="list-style-type: none"> • Safety: Providing guidance on responsible gaming, age restrictions, and managing exposure to inappropriate content in popular games.
7	DIMELI4AC GEO scope: CY, DE, GR, IE	The DIMELI4AC project aimed to develop digital media literacy and critical thinking skills among	DIMELI4AC focused on fostering digital media literacy and critical thinking in students aged 10 to 15, using an e-learning platform that provided	<ul style="list-style-type: none"> • Cognitive: Teaching students to recognise and critically evaluate biases and fake news

#	Practice name (EN)	One sentence description	Practice description (key aims, objectives and actions)	Well-being in digital technology categories targeted
	<p>EDUC. LEVELS: Primary (ISCED 1), Lower Secondary (ISCED 2)</p> <p>SCHOOL ACTORS: Learners; Educators; Parents; School leaders</p>	students aged 10 to 15, supported by their parents, teachers, and schools.	learning resources and assessment tools. An interactive avatar-based game awarded students "DIMELI badges" for demonstrating safe and responsible technology use, aligned with democratic values and digital citizenship. The project sought to empower young people to become responsible global citizens by promoting digital literacy through school labs, observatories, and blended learning opportunities, while strengthening educators' roles in delivering high-quality digital education.	<p>through interactive tools.</p> <ul style="list-style-type: none"> • Safety: Awarding badges for lessons on data privacy, cyberbullying, and safe online behaviour, encouraging respectful and responsible technology use.
8	<p>Youth Against Cyberbullying</p> <p>GEO scope: FR, DK, HU, IT, HR, RS</p> <p>EDUC. LEVELS: Lower secondary (ISCED 2), Upper secondary (ISCED 3)</p> <p>SCHOOL ACTORS: Learners; Educators; Parents</p>	Youth Against Cyberbullying aimed to prevent cyberbullying through a mobile app featuring role-playing games, quizzes, and scenarios to raise awareness among young people.	Youth Against Cyberbullying raised awareness on cyberbullying by engaging young people through a mobile app with role-playing games, quizzes, and situational scenarios. The app provided emergency contacts and listed support organisations to assist cyberbullying victims. By using interactive, game-based methods, the project aimed to help young people understand the full scope of cyberbullying, enabling them to identify and counteract harmful online behaviours.	<ul style="list-style-type: none"> • Safety: Raising awareness about cyberbullying through interactive role-play games, quizzes, and scenarios designed to educate on recognising and addressing online harassment.
9	<p>Responsible Innovation in Technology for Children (RITEC)</p> <p>GEO scope: AL, BG, BR, ID, IQ, JO, PK, TN, TZ, TW, UK, UY, ZA</p> <p>EDUC. LEVELS: Children 7-18 years of age</p> <p>SCHOOL ACTORS: Learners; EdTech providers; School-leaders.</p>	Responsible Innovation in Technology for Children (RITEC) was an international, multi-stakeholder and cross-sectoral collaboration between organisations that believed the design and development of digital technology should support the rights and well-being of children as a primary objective – and that children should have a	<p>The project aimed to promote children's well-being in the digital world by defining what well-being means for children and researching how digital experiences can be designed to enhance children's well-being. The anticipated result was to help tech developers and policymakers develop a common understanding of how digital experiences could positively influence aspects of child well-being. The project objectives included:</p> <ol style="list-style-type: none"> 1. Define well-being for children and develop a well-being framework. 	<ul style="list-style-type: none"> • Cognitive: feeling in control and making decisions about their gameplay, developing strategies to make progress, making decisions about in-game behaviours, problem-solving, customisation. • Psychological: engaging without interruptions, positive forms of calm, quietness and escapism, enabling children to de-stress, experiencing negative

#	Practice name (EN)	One sentence description	Practice description (key aims, objectives and actions)	Well-being in digital technology categories targeted
		prominent voice in making this a reality.	<p>2. Test the well-being framework with children.</p> <p>3. Integrate the learnings into commercial settings.</p> <p>4. Disseminate findings and prompt conversations about centring children's well-being in digital design.</p>	<p>emotions and building resilience.</p> <ul style="list-style-type: none"> • Social: social connections, making new friends, being part of a team that works together, teaching others and sharing information about how to play, being a part of the gaming community. • Safety: safety and security, controlled exposure, developing the skills and coping mechanisms necessary to avoid or minimise the harm of the risks associated with digital play.
10	Facts4All GEO scope: FI, MT, NL EDUC. LEVELS: Primary (ISCED 1), Lower secondary (ISCED 2), Upper secondary (ISCED 3) SCHOOL ACTORS: Learners; Educators; Parents	The Facts4All Massive Open Online Course (MOOC) empowers primary and secondary education teachers to develop and implement effective whole-school approaches to foster critical thinking and tackle online disinformation through intergenerational collaboration and community engagement.	Facts4All aims to raise awareness of information disorders and provides teachers with tools to develop students' critical online literacy skills through a whole-school approach that addresses Internet-based challenges and tackles disinformation relevant to the school community. The project launched a MOOC to enable primary and secondary schools to serve as intergenerational learning hubs against disinformation, fostering community engagement. The anticipated outcome was to establish effective, sustainable approaches within schools to address societal challenges and disinformation impacting local communities, a need that became particularly pressing during the COVID-19 pandemic.	<ul style="list-style-type: none"> • Safety: tackling disinformation, addressing challenges posed by the Internet.
11	Holistic Education, Resilience and Media Maturity in Educational Settings (HERMMES)	The HERMMES project fosters cooperation among parents, teachers, and researchers to help young people become resilient,	HERMMES aims to ensure that students graduate with media maturity and digital competence, empowering them to navigate both digital and analogue media responsibly. Key actions include creating a	<ul style="list-style-type: none"> • Cognitive: Supporting the development of media maturity and digital competence with structured

#	Practice name (EN)	One sentence description	Practice description (key aims, objectives and actions)	Well-being in digital technology categories targeted
	<p>GEO scope: BE, CH, DE, IT, NL, NO</p> <p>EDUC. LEVELS: All within the study scope</p> <p>SCHOOL ACTORS: Learners; Educators; Parents; School leaders; Schools as organisations</p>	media-mature citizens capable of making informed choices about digital technology.	website with educational resources, school policy guidelines, and tools for media maturity, as well as providing training for teachers and webinars for parents. Expected outcomes are practical resources for educators and parents to support children's informed use of media, encompassing topics like privacy, safety, and digital citizenship. By 2025, the project aims to have a comprehensive, adaptable media education website accessible to all partners.	<p>lesson frameworks and school policies.</p> <ul style="list-style-type: none"> • Safety: Promoting privacy awareness and empowering informed digital choices. • Social: Strengthening teacher and parent roles in discussions with children about digital risks.
12	<p>European Safe Online Initiative</p> <p>GEO scope: BE, BG, CY, GR, RO</p> <p>EDUC. LEVELS: All within the study scope (up to 18 years old)</p> <p>SCHOOL ACTORS: Learners; Educators; Parents</p>	European Safe Online Initiative aimed to change the media and parenting culture of families by promoting active and open parenting based on trust, respect, empathy, and mutual support.	The European Safe Online Initiative supported associations and educational institutions in developing programmes to educate parents and educators about both the opportunities and risks that digital media presents to children. The initiative provided five interactive modules—covering Internet privacy, gaming, social media, cyberbullying, and online relationships—enhanced with quizzes, simulations, and videos. A key focus was reaching socially disadvantaged families to bridge the digital divide, equipping parents to participate more fully in digital society. The expected outcome was to empower parents to cultivate a critical approach to media in their children, fostering discernment in media consumption.	<ul style="list-style-type: none"> • Digital divide: Included outreach to socially disadvantaged families to increase digital participation. • Safety: Educated on responsible online use and implemented a “cascade training” approach for skill dissemination. • Social: Provided platforms for parents to discuss questions and access reliable information. • Psychological: Addressed cyberbullying through comprehensive education.
13	<p>Curriculum Digital Media and Computer Studies for Steiner Waldorf Schools</p> <p>GEO scope: EU27</p> <p>EDUC. LEVELS: Primary (ISCED 1), Lower secondary (ISCED</p>	The Curriculum Digital Media and Computer Studies for Steiner Waldorf Schools provides a competence-based framework to help schools develop tailored, age-appropriate ICT and media curricula aligned with their	This curriculum supplements Steiner Waldorf schools' existing programmes with digital information and communication technology (ICT) education, focusing on safety, media sovereignty, subject competence, and understanding and use of digital media. It includes actions such as training students to safeguard against digital risks, integrating	<ul style="list-style-type: none"> • Physical: Promoting balanced use of digital technology to support overall well-being. • Psychological: Encouraging a mindful approach to media use and managing digital identity.

#	Practice name (EN)	One sentence description	Practice description (key aims, objectives and actions)	Well-being in digital technology categories targeted
	2), Upper secondary (ISCED 3) SCHOOL ACTORS: Learners; Educators; Parents	unique contexts and needs.	media studies into core lessons, and supporting age-appropriate media experiences through collaboration with external experts and parents. The expected outcomes are to reshape educational practices within Steiner Waldorf schools, enabling quick integration of new educational methods and the sharing of best practices across schools.	<ul style="list-style-type: none"> • Safety: Educating on device protection, data privacy, digital identity management, and safeguarding against digital risks. • Social: Raising awareness of digital technology's role in social well-being and inclusion.
14	Digital Citizenship Education Handbook GEO scope: EU27 EDUC. LEVELS: All within the study scope (up to 18 years old) SCHOOL ACTORS: Learners; Educators; Parents; School leaders; Schools as organisations	The Digital Citizenship Education Handbook provides a practical resource to enhance understanding of digital citizenship, focusing on online access, well-being, and rights, while inspiring classroom practice.	The Digital Citizenship Education Handbook builds upon the framework, glossary, and policy guidelines developed by the Digital Citizenship Education Expert Group, aiming to deepen understanding of digital citizenship's societal importance. It is structured into three sections—Being Online, Well-Being Online, and Rights Online—each with dimensions supporting educators and empowering students to explore their roles in digital and offline communities. The Well-Being Online section, for example, includes competences on online communication, interaction in virtual social spaces, and personal data management. The handbook's intended outcome is to serve as an accessible, inspiring guide for integrating digital citizenship concepts into classroom practice.	<ul style="list-style-type: none"> • Cognitive: Encouraging creativity with digital tools and fostering critical thinking. • Psychological: Addressing issues like online addiction, ergonomic health, and excessive screen time. • Safety: Emphasising privacy rights, security, freedom of expression, and protection of personal information online. • Social: Promoting ethical online behaviour, empathy, and understanding others' perspectives.
15	Social Media Literacy for Change (sml4change) GEO scope: International, BE EDUC. LEVELS: Primary (ISCED 1), Lower secondary (ISCED 2), Upper secondary (ISCED 3), Initial VET (ISCED 2-3)	Social Media Literacy for Change (sml4change) was a one-year project co-funded by the European Commission, aiming to empower European school leaders and teachers to foster social media literacy in schools and local communities.	The Social Media Literacy for Change initiative sought to equip school leaders and educators with the knowledge and tools to understand, develop, and implement a social media literacy strategy in their schools. A five-module online course was created through collaboration with educators from twelve EU Member States, providing both a theoretical foundation and practical examples. By the end of the course, participants were	<ul style="list-style-type: none"> • Safety: Offered a MOOC covering topics like cyberbullying, hate speech, and privacy risks, along with strategies for implementing school-wide media literacy initiatives.

#	Practice name (EN)	One sentence description	Practice description (key aims, objectives and actions)	Well-being in digital technology categories targeted
	SCHOOL ACTORS: Educators; School leaders		expected to have the skills necessary to establish a whole-school social media literacy strategy that addresses contemporary societal challenges.	
16	Gen Z - Remote Learning System to Boost Information Literacy and Digital Content Creation at School GEO scope: ES, HU, IT, PL, PT EDUC. LEVELS: Lower secondary (ISCED 2), Upper secondary (ISCED 3) SCHOOL ACTORS: Learners; Educators	The Gen Z project developed an Open Educational Resource focusing on information literacy and digital content creation to enable teachers to implement innovative educational tools in schools.	Gen Z aimed to build students' critical skills for active citizenship, enhance teachers' digital competence, and promote digital literacy as a defence against disinformation. Key actions included creating a lateral reading guide for information evaluation, piloting these competencies in five local settings, and conducting training events for teachers and fact-checkers. The project culminated in resources empowering teachers and students to assess online information accurately, understand types of manipulation, and create counter-narratives to misinformation on social media.	<ul style="list-style-type: none"> • Cognitive: Focused on developing skills to identify disinformation, apply lateral reading strategies, and understand various manipulative content types such as deepfakes and fabricated information.
17	MenABLE - Empower Manpower Against Gender-Based Violence Online GEO scope: BE, DK, GR EDUC. LEVELS: Upper secondary (ISCED 3) SCHOOL ACTORS: Learners; Educators; Parents	The MenABLE project aims to prevent online gender-based violence by addressing its root causes and promoting prevention strategies, primarily targeting boys and young men, with an emphasis on the essential role of male involvement.	MenABLE works to combat online gender-based violence by promoting awareness, tolerance, and respect through educational resources and activities aimed at various stakeholders. The project develops materials that highlight the role of boys and men in addressing online GBV, raises awareness on online risks and stereotypes, and trains stakeholders to prevent and respond to GBV. The expected outcome is to foster primary prevention, challenging social norms and behaviours that tolerate gender-based violence.	<ul style="list-style-type: none"> • Safety: Provides educational materials, dilemmas, and quizzes to educate on gender-based violence, including aspects of sexual, physical, mental, and economic harm. • Social: Offers resources for teachers to address diverse gender expectations, prejudices, and online challenges, with tools to facilitate these discussions in classroom settings.
18	Youth Skills (ySKILLS) GEO scope: AT, BE, CZ, DE, DK, EE, FI, GB, IT, NL, PL, PO	The ySKILLS project examined the risks and opportunities related to ICT use among children and adolescents (aged	ySKILLS aimed to maximise the positive impact of ICT use on children's well-being by enhancing digital skills and resilience. The project developed a comprehensive	<ul style="list-style-type: none"> • Cognitive: Explored information navigation and processing skills among students.

#	Practice name (EN)	One sentence description	Practice description (key aims, objectives and actions)	Well-being in digital technology categories targeted
	<p>EDUC. LEVELS: Lower secondary (ISCED 2), Upper secondary (ISCED 3)</p> <p>SCHOOL ACTORS: Learners; Educators; Parents</p>	12–17) to understand how digital skills can enhance their cognitive, physical, psychological, and social well-being.	model to predict ICT impacts on cognitive, physical, psychological, and social aspects of well-being. Key activities included a three-wave survey across six countries, fMRI studies in two, and targeted research on at-risk groups. The project also provided evidence-based policy recommendations to inform stakeholders on how to support children’s well-being and resilience in digital environments.	<ul style="list-style-type: none"> • Physical: Researched the gender gap in ICT usage and its implications. • Psychological: Examined both positive and negative effects of digital technology on mental health. • Social: Developed toolkits to improve communication, interaction skills, and encourage appropriate digital behaviour.
19	<p>3D4VIP (3D Printing for Education for Visually Impaired Students)</p> <p>GEO scope: DE, ES, GB, NL</p> <p>EDUC. LEVELS: Primary (ISCED 1), Lower secondary (ISCED 2), Upper secondary (ISCED 3)</p> <p>SCHOOL ACTORS: Learners; Educators; EdTech companies and designers</p>	The platform provided guidelines, instructions, and recommendations on creating 3D educational models for visually impaired students, offering insights on how they could engage in 3D design and printing.	The 3D4VIP project sought to improve educational and employment opportunities for visually impaired (VI) students by developing accessible 3D design and printing resources. Activities included optimising 3D model requirements, producing classroom materials, and assessing software accessibility for VI students. The project raised awareness among edi about the educational potential of 3D printing for VI students, enhancing skills in spatial awareness and design concepts. By project’s end, educators were better equipped to support VI students, and 3D printing experts had connected to share best practices in accessible 3D model development.	<ul style="list-style-type: none"> • Cognitive: Promoted spatial awareness, problem-solving, fine motor skills, and logical thinking through 3D printing. • Psychological: Fostered empathy and mutual support in group project settings. • Social: Supported social and emotional skill development through collaborative activities like using Soma cubes.
20	<p>SOLIS</p> <p>GEO scope: ES, GB, GR, IT, LT, MT, NO, TR</p> <p>EDUC. LEVELS: Lower secondary (ISCED 2), Upper secondary (ISCED 3)</p> <p>SCHOOL ACTORS: Learners; Educators;</p>	The SOLIS project used a whole-school approach to develop an e-learning platform and web portal addressing challenges in cultural diversity and discrimination through interactive activities like digital storytelling.	SOLIS aimed to foster cultural empathy and understanding among students by focusing on the impacts of diversity and collaboration. The project created Open Educational Resources (OERs), an e-learning platform, and digital storytelling tools, while also piloting and monitoring these resources in diverse school settings. Designed to bridge gaps in understanding cultural diversity,	<ul style="list-style-type: none"> • Cognitive: Enhanced communication, creativity, visual literacy, and empathy through digital storytelling. • Psychological: Addressed topics related to anxiety and brain function. • Safety: Explored the causes and effects of

#	Practice name (EN)	One sentence description	Practice description (key aims, objectives and actions)	Well-being in digital technology categories targeted
	Parents; Schools as organisations		the project combined co-designed classroom activities with digital storytelling to encourage empathy, reduce bullying, and address social exclusion. The project's broader goal was to enhance inclusion and support students' emotional and social development.	bullying and cyberbullying. <ul style="list-style-type: none"> • Social: Promoted social inclusion, diversity, and understanding of the impacts of social exclusion.
21	ICT & Early School Leaving. Developing a New Methodology to Empower Children in Digital Wellbeing and Critical ThiNkinG (ENDING) GEO scope: DE, ES, PT EDUC. LEVELS: Lower secondary (ISCED 2) (11–14 years) SCHOOL ACTORS: Learners; Educators; Parents	ENDING was a strategic partnership aimed at preventing ICT abuse and reducing early school leaving through a peer-learning-based methodology that enhances digital well-being and critical thinking.	The ENDING project sought to reduce early school leaving by implementing peer-to-peer methods that promote digital well-being and network security, empowering students to recognise online risks and develop solutions. This project delivered interactive and practical educational content, trained the educational community on ICT safety, and encouraged critical thinking among students. The expected outcomes were innovative tools to foster responsible ICT use, support positive peer relationships, promote critical thinking, and raise awareness of online risks, ultimately cultivating a respectful digital environment.	<ul style="list-style-type: none"> • Cognitive: Provided insights on disinformation, media literacy, and critical thinking. • Physical: Addressed health risks associated with excessive digital use, including musculoskeletal issues, visual strain, metabolic and cardiac conditions, and sleep disorders. • Psychological: Targeted issues like impulsivity, self-esteem challenges, emotional instability, social phobia, ADHD, and depression. • Safety: Covered cyber-related criminal behaviour, cyberbullying, grooming, sexting, identity theft, and protection against inappropriate content.
22	SIKID (Sicherheit für Kinder in der digitalen Welt) GEO scope: DE EDUC. LEVELS: Lower secondary (ISCED 2) (11–16 years) SCHOOL ACTORS: Learners; Educators;	SIKID is a research project focused on creating a sustainable security architecture for protecting children in the evolving digital landscape, grounded in democratic and child rights principles.	SIKID aims to enhance the safety of children and young people in online spaces by establishing security standards rooted in child rights, contributing to the Digital Services Act. It involves developing ethical frameworks for child participation in security research, creating low-threshold security tools, and drafting actionable recommendations for legislators and security	<ul style="list-style-type: none"> • Safety: Focuses on digital literacy and competencies to counter online risks like cybergrooming and hate speech, aligned with the Digital Services Act. • Cognitive: Promotes resilience against disinformation and fake news.

#	Practice name (EN)	One sentence description	Practice description (key aims, objectives and actions)	Well-being in digital technology categories targeted
	Parents; Schools as organisations		practitioners. The project engages children in co-designing digital civil courage concepts, establishing good practice models for educators, care facilities, parents, and security authorities, ultimately striving for a comprehensive and inclusive security approach.	<ul style="list-style-type: none"> • Social: Addresses risks of doxing and sexting, enhancing protection for children. • Psychological: Tackles issues such as doomscrolling and self-harm, fostering digital well-being.
23	Agile EDU GEO scope: BE, DK, ES, FI, FR, NO, PT, SE, SI EDUC. LEVELS: Primary (ISCED 1), Lower secondary (ISCED 2), Upper secondary (ISCED 3) SCHOOL ACTORS: Learners; Educators; Parents; EdTech companies and designers; School leaders; Schools as organisations	Agile EDU explores pedagogical approaches, trust and safety, equity, data use, and ethical practices in digital education, combining research with structured dialogue among stakeholders.	Agile EDU seeks to identify factors critical to implementing inclusive, high-quality digital education ecosystems. The project uses an iterative approach, conducting surveys, expert workshops, and national and EU-level dialogue labs to collect evidence from research and practice. Expected outputs include learning stories highlighting best practices, case studies on digital education, a educator development resource with MOOC content, and a final report with recommendations for stakeholders. By focusing on preparedness gaps revealed by the COVID-19 pandemic, Agile EDU aims to address challenges in digital education adoption.	<ul style="list-style-type: none"> • Cognitive: Enhances digital competences for educators. • Digital divide: Aims to ensure equitable access to and use of digital educational tools. • Safety: Establishes rules for AI use in schools, data protection against breaches, and secure data ownership.

Note: Interviews were conducted with a selection of practices ensuring a balanced representation across levels of education, well-being categories, targeted school actors, geographical regions, practice size, and overall quality, including the comprehensiveness of available outcome data. Due to non-responses, interviews were conducted with eight out of the 11 invited practices.

Source: JRC

Annex 6. Recommendation’s contribution to the implementation of the Model of Emerging Practices promoting WBDE

Table 4. Recommendations’ contribution to the implementation of the Model of Emerging Practices promoting WBDE

Model of emerging practices promoting WBDE		Recommendations					
		for Policy actors	for School leaders	for Educators	for Parents/carers	for edTech providers	for Civil society
1	Fostering a whole-school approach		R1. School leaders’ training; R2. Develop a school strategy to promote WBDE; R3. Build a strong and supportive community; R5. Facilitate access to digital education infrastructure	R1. Engage in developing school strategy, policies, and guidelines for WBDE;	R1. Parents as Role Models; R4. Engage with schools; R5. Promote safe and balanced technology use at home	R2. Collaborate with educational institutions and child development experts to co-design tools; R3. Organize EdTech testbeds to conduct iterative testing with end-users	R1. Build partnerships with schools; R3. Encourage community involvement
2	Empowering the school community actors	R2. Raising awareness; R5. Provide support for schools; R6. Provide support for teachers	R1. School leaders’ training; R4. Support teachers	R2. Engage in learning opportunities on WBDE; R3. Facilitate learning opportunities for learners; R4. Reflect on personal digital competences	R1. Parents as Role Models		R2. Support competence development programs
3	Pedagogical approaches enhancing WBDE		R4. Support teachers	R2. Engage in learning opportunities on WBDE; R3. Facilitate learning opportunities for learners; R4. Reflect on personal digital competences; R5. Promote digital inclusion in the classroom	R1. Parents as Role Models; R2. Engage in discussions and reflections with their children; R3. Reflect on their own digital competences; R5. Promote safe and		R2. Support competence development programs

Model of emerging practices promoting WBDE		Recommendations					
		for Policy actors	for School leaders	for Educators	for Parents/carers	for edTech providers	for Civil society
					balanced technology use at home		
4	Schools' digital readiness and inclusion	R4. Digital inclusion; R7. Promote EdTech embedding WBDE in design	R5. Facilitate access to digital education infrastructure	R3. Facilitate learning opportunities for learners; R4. Reflect on personal digital competences; R5. Promote digital inclusion in the classroom	R1. Parents as Role Models; R3. Reflect on their own digital competences	R1. Adopt a user-centred design approach	
5	Addressing WBDE implementation barriers	R3. Curricula development for WBDE; R5. Provide support for schools	R1. School leaders' training; R4 Support teachers	R2. Engage in learning opportunities on WBDE; R3. Facilitate learning opportunities for learners; R4. Reflect on personal digital competences; R5. Promote digital inclusion in the classroom			R2. Support competence development programs
	Whole-school approach challenges	R2. Raising awareness; R5 Provide support for schools	R3. Build a strong and supportive community; R4 Support teachers	R2. Engage in learning opportunities on WBDE;	R1. Parents as Role Models; R3. Reflect on their own digital competences; R4. Engage with schools	R2. Collaborate with educational institutions and child development experts to co-design tools; R3. Organize EdTech testbeds to	R1. Build partnerships with schools; R3. Encourage community involvement

Model of emerging practices promoting WBDE		Recommendations					
		for Policy actors	for School leaders	for Educators	for Parents/carers	for edTech providers	for Civil society
Core Dimensions						conduct iterative testing with end-users	
	Teachers' related barriers	R6. Provide support for teachers	R4. Support teachers; R5. Facilitate access to digital education infrastructure	R2. Engage in learning opportunities on WBDE; R4. Reflect on personal digital competences			
	Lack of supportive policies and guidelines	R1. Development of policies supporting WBDE	R4. Support teachers	R2. Engage in learning opportunities on WBDE			
	EdTech and contextual issues	R7. Promote EdTech incorporating WBDE in design	R3. Build a strong and supportive community; R4. Support teachers	R2. Engage in learning opportunities on WBDE; R4. Reflect on personal digital competences		R1. Adopt a user-centred design approach; R2. Collaborate with educational institutions and child development experts to co-design tools	
6 Promoting enablers for WBDE implementation	Leadership and strategy	R3. Curricula development for WBDE	R1. School leaders' training ; R2. Develop a school strategy to promote WBDE; R5. Facilitate access to	R1. Engage in developing school strategy, policies, and guidelines for WBDE	R4. Engage with schools		

Model of emerging practices promoting WBDE		Recommendations					
		for Policy actors	for School leaders	for Educators	for Parents/carers	for edTech providers	for Civil society
Core Dimensions			digital education infrastructure				
	Whole-school collaboration	R6. provide support for teachers; R7. Promote EdTech incorporating WBDE in design	R3. Build a strong and supportive community; R4. Support teachers		R2. Engage in discussions and reflections with their children; R3. Reflect on their own digital competences; R4. Engage with schools; R5. Promote safe and balanced technology use at home	R2. Collaborate with educational institutions and child development experts to co-design tools; R3. Organize EdTech testbeds to conduct iterative testing with end-users	R1. Build partnerships with schools; R3. Encourage community involvement
	Teacher support and professional development	R6. provide support for teachers	R4. Support teachers	R2. Engage in learning opportunities on WBDE; R4. Reflect on personal digital competences			R2. Support competence development programs
	Evidence-based implementation	R5. Provide support for schools					
	Policy and infrastructure support	R1. Development of policies supporting WBDE					

Model of emerging practices promoting WBDE		Recommendations					
		for Policy actors	for School leaders	for Educators	for Parents/carers	for edTech providers	for Civil society
	Supportive EU policies, initiatives and instruments	R2. Raising awareness; R3. Curricula development for WBDE; R7. Promote EdTech incorporating WBDE in design				R1. Adopt a user-centered design approach; R2. Collaborate with educational institutions and child development experts to co-design tools; R3. Organize EdTech testbeds to conduct iterative testing with end-users	
7	Opportunities for building sustainable WBDE	R8. Support opportunities to build sustainable WBDE	R6. Implement opportunities to build sustainable WBDE				

Source: JRC

Annex 7. Suggested Optional SELFIE questions on WBDE

The Self-reflection on Effective Learning by Fostering the use of Innovative Educational Technologies (SELFIE) is a free tool designed by the EC to help schools integrate digital technologies effectively into teaching, learning, and assessment. Its main purpose is to provide a structured way for schools to collectively reflect on their current technology use and support improvement through data-driven insights. More specifically, it aims to **support digital transformation in education, fostering collective reflection, customisation to individual school needs, and inclusion of different perspectives** that build on the whole school approach. Lastly, the design of SELFIE is flexible and customisable as it allows schools to add up to ten optional questions that incorporate the viewpoints of school leaders, educators, and learners.

Developing an **optional set of SELFIE questions on WBDE is essential, given the opportunities and potential well-being benefits digitalisation in the European education systems can help unlock**. Our study findings from 12 schools across the EU highlighted that the increasing integration of digital technology brings various WBDE opportunities such as peer learning, increased collaboration, personalised learning and self-assurance, among others. Nevertheless, school communities, industry and policy makers must also recognise the negative impacts of digital education on various aspects of well-being. The ubiquitous influence of digital technologies in daily life extends beyond schools, blurring the boundaries between various learning environments and leisure. Addressing WBDE through the SELFIE assessment framework would enable schools to not only monitor the effectiveness of digital technologies for teaching and learning but also to mitigate negative impacts on the psychological, physical and other categories of well-being addressed in this study. This approach would ensure a more comprehensive and sustainable integration of digital education ecosystems, contributing to both academic success and the overall well-being of the educational community.

SELFIE WBDE items were formulated along the eight established SELFIE areas:

- A. **Leadership**: focusing on the assessment of digital technology needs, consulting teachers in defining technical specifications for digital technology, and placing WBDE as part of school's digital strategy.
- B. **Collaboration and Networking**: focusing on guidelines for stress-free and ethical communication, communication with parents, and participation in research and development programmes.
- C. **Infrastructure and Equipment**: focusing on digital technologies designed for education, quality assurance frameworks, and technologies explicitly designed to enhance well-being.
- D. **Continuing Professional Development**: focusing on coherent professional learning programmes, as well as CPD on WBDE, online threats, and emerging technologies.
- E. **Pedagogy: Supports and Resources**: focusing on the design of digital technologies, activities to increase resilience, and the use of learning analytics.
- F. **Pedagogy: Implementation in the classroom**: focusing on the balanced use of digital technologies and physical activity.
- G. **Pedagogy: Assessment Practices**: focusing on online assessments and online grading.
- H. **Student Digital Competence**: focusing on students' competences and habits to use digital technologies purposefully, students learning to navigate emerging technologies, and provisions to WBDE in the school's curriculum.

As one of the deliverables of this study, findings from the fieldwork were allocated and priorities per all established SELFIE areas to elicit the key points for reflection. Based on the SELFIE design

and whole-school approach, **a set of 23 optional questions on WBDE was developed for school leaders, educators and learners.** The elements developed represent study findings in line with the adopted definition of for well-being in digital education considering types of well-being aspects (e.g. psychological, physical), technology and other elements, where relevant.

Several **methodological limitations** should be noted. Firstly, the items do not distinguish differences between educational levels. The educational levels analysed within the study scope include primary, lower and upper-secondary education; initial vocational education and training (IVET). Where possible, findings in relation to specific educational levels are described in the report. Overall, the developed SELFIE WBDE questions are relevant and applicable for all educational levels included in SELFIE (except for upper secondary work-based learning education). To add, the SELFIE questions are based on a multi-task 17-month project which gathered numerous findings. The findings have been sorted and prioritised to emphasise the aspects relevant to most school communities, applicable in different unique contexts and realities. It must be noted, however, that the SELFIE items prepared and included in this report **have not been tested psychometrically** and are based on preliminary research conducted around well-being in digital education.

In this document you can find questions that can help reflect on the well-being of your school community in the context of digital education. If you want to add some of these questions to the SELFIE questionnaire you can copy and paste them in the section ‘Your own statements’ from ‘Customise the questionnaire’.

The definition of ‘Well-being in digital education’ is: *‘Physical, cognitive, social, and psychological states and their inter-connected development of students and teachers brought by their engagement in digital education. It considers wider teaching, learning, and socio-economic, cultural background and policy contexts as well as the role of other whole-school actors. Such well-being aims to maximise the opportunities (e.g., self-realisation, resilience), and minimise the risks (e.g., safety, digital divide related) brought by digital education’.* For more contextual information, please refer to the study report. For more guidance and explanations, please refer to the Guidance for schools provided.

Table 5. List of SELFIE WBDE questions

SELFIE area / Item title	SCHOOL LEADER	TEACHER	STUDENT
Area A: Leadership			
1. Assessment of digital technology needs	<p>In our school, we engage our school community to reflect on the needs for a safe, purposeful and balanced use of digital technologies for teaching and learning</p> <p>Choose 5 only if, in your opinion, teachers and students are pro-actively involved in reflecting on the needs for digital technologies, reflecting on safe, purposeful and balanced use of technologies for teaching and learning.</p>	<p>In our school, we are engaged in the reflection of the needs for a safe, purposeful and balanced use of digital technologies for teaching and learning</p> <p>Choose 5 only if, in your opinion, you are pro-actively involved in reflecting on the needs for digital technologies, reflecting on safe, purposeful and balanced use of technologies for teaching and learning.</p>	

SELFIE area / Item title	SCHOOL LEADER	TEACHER	STUDENT
2. Digital technologies: technical specifications	<p>We consult teachers in defining technical specifications when acquiring digital technologies</p> <p>Choose 5 only if, in your opinion, teachers are consulted in the process of procurement / acquisition of digital technologies, helping identify and select safe and purposeful technology based on their own and their students' experience and needs</p>	<p>Our school leaders consult us teachers in defining technical specifications when acquiring digital technologies</p> <p>Choose 5 only if, in your opinion, you are consulted in the process of procurement / acquisition of digital technologies, helping identify and select safe and purposeful technology based on their own and their students' experience and needs</p>	
3. Well-being as part of digital strategy	<p>In our school, well-being of the school community is part of our school's digital strategy</p> <p>Choose 5 only if, in your opinion, there is a clear school's digital strategy, where well-being of the school community is part of it, reflecting upon the different interconnected types of well-being in digital education (e.g., psychological, physical, cognitive, social, safety related).</p>	<p>In our school, well-being of the school community is part of our school's digital strategy</p> <p>Choose 5 only if, in your opinion, there is a clear school's digital strategy, where well-being of the school community is part of it, reflecting upon the different interconnected types of well-being in digital education (e.g., psychological, physical, cognitive, social, safety related).</p>	
Area B: Collaboration and Networking			
4. Communication guidelines	<p>In our school, we have developed guidelines for online communication among school community members</p> <p>Choose 5 only if, in your opinion, your school has clear and up-to date guidelines, focusing on ethical, inclusive, and stress-free communication among school community members to prevent unwanted contacts or pressures, including a list of key communication channels</p>	<p>In our school, guidelines for online communication among school community members are available</p> <p>Choose 5 only if, in your opinion, your school has clear and up-to date guidelines, focusing on ethical, inclusive, and stress-free communication among school community members to prevent unwanted contacts or pressures, including a list of key communication channels</p>	<p>In our school, we have guidelines on how to communicate with teachers and other students online</p> <p>Choose 5 only if, in your opinion, your school has clear and up-to date guidelines, focusing on ethical, inclusive, and stress-free communication among school community members to prevent unwanted contacts or pressures, including a list of key communication channels</p>

SELFIE area / Item title	SCHOOL LEADER	TEACHER	STUDENT
5. Communication with parents	<p>In our school, relationships with parents are fostered by balancing the use of digital technologies and in-person communication</p> <p>Choose 5 only if, in your opinion, you use both digital technologies and in-person communication to foster a healthy relationship with parents</p>	<p>In our school, we foster relationships with parents by balancing the use of digital technologies and in-person communication</p> <p>Choose 5 only if, in your opinion, you use both digital technologies and in-person communication to foster a healthy relationship with parents</p>	
6. Research and development programmes*	<p>In our school, we participate in research and development programmes testing how new digital technologies affect the well-being of school community</p> <p>Choose 5 only if, in your opinion, your school actively participates in research and development programmes (e.g., with research institutes, educational technology providers) and provides teachers and students with testing opportunities to try out new digital technologies that helps ensure their utility and well-being.</p>	<p>In our school, we participate in research and development programmes, testing how new digital technologies affect the well-being of school community</p> <p>Choose 5 only if, in your opinion, your school actively participates in research and development programmes (e.g., with research institutes, educational technology providers) and provides teachers and students with testing opportunities to try out new digital technologies that helps ensure their utility and well-being</p>	<p>In our school, we participate in research and development programmes, testing how new digital technologies affect our well-being</p> <p>Choose 5 only if, in your opinion, you actively participate in research and development programmes (e.g., with research institutes, educational technology providers) to test new digital technologies</p>
Area C: Infrastructure and Equipment			
7. Technologies designed for education*	<p>In our school, we prioritise the use of digital technologies specifically designed for education rather than using technologies designed for general use or businesses</p> <p>Choose 5 only if, in your opinion, your school uses digital technologies specifically designed for education rather than only using technology for general use or business (e.g., Microsoft Teams)</p>	<p>In our school, we prioritise the use of digital technologies specifically designed for education rather than using technologies designed for general use or businesses</p> <p>Choose 5 only if, in your opinion, your school uses digital technologies specifically designed for education rather than only using technology for general use or business (e.g., Microsoft Teams)</p>	<p>In our school, digital technologies designed specifically for education are used instead of those designed for general use</p> <p>Choose 5 only if, in your opinion, the digital technologies you use at school have been specifically designed for education rather than for general use or business (e.g., Microsoft Teams)</p>
8. Quality assurance frameworks	<p>In our school, we follow quality assurance</p>	<p>In our school, we follow quality assurance</p>	

SELFIE area / Item title	SCHOOL LEADER	TEACHER	STUDENT
	<p>frameworks for the use of digital technologies</p> <p>Choose 5 only if, in your opinion, your school uses quality assurance frameworks that promote the ethical, safe digital technologies that offer quality content and pedagogical design</p>	<p>frameworks for the use of digital technologies</p> <p>Choose 5 only if, in your opinion, your school uses quality assurance frameworks that promote the ethical, safe digital technologies that offer quality content and pedagogical design</p>	
9. Technologies for well-being*	<p>In our school, we use digital technologies specifically designed to enhance the well-being of the school community</p> <p>Choose 5 only if, in your opinion, at your school you use digital technologies that is designed to enhance the well-being of the school community (e.g., digital well-being applications or well-being platforms).</p>	<p>In our school, we use digital technologies specifically designed to enhance the well-being of the school community</p> <p>Choose 5 only if, in your opinion, at your school you use digital technologies that are designed to enhance the well-being of the school community (e.g., digital well-being applications or well-being platforms)</p>	<p>In our school, we use digital technologies specifically designed to enhance our well-being</p> <p>Choose 5 only if, in your opinion, at your school digital technologies designed to enhance your well-being (e.g., digital well-being applications or well-being platforms) are used</p>
Area D: Continuing Professional Development			
10. Coherent professional learning programme	<p>In our school, we provide teachers with a professional learning programme to prevent feelings of anxiety and helplessness about the use of digital technologies</p> <p>Choose 5 only if, in your opinion, your school provides its teachers with a coherent professional learning programme to allow them time and access to personalised learning, allowing them to develop their digital competences and further their careers</p>	<p>In our school, I have access to a professional learning programme that prevents feelings of anxiety and helplessness about the use of digital technologies</p> <p>Choose 5 only if, in your opinion, your school provides you with a coherent professional learning programme to allow you the time and access to personalised learning, allowing you to develop your digital competences and further your career</p>	
11. CPD: Well-being in digital education	<p>In our school, teachers have access to training on well-being in digital education, where they learn about balanced and purposeful use of digital technologies</p> <p>Choose 5 only if, in your opinion, your school provides teachers access to training on well-being in digital</p>	<p>In our school, I have access to training on well-being in digital education, where I learn about the balanced and purposeful use of digital technologies</p> <p>Choose 5 only if, in your opinion, you have access to training on well-being in digital education, learning</p>	

SELFIE area / Item title	SCHOOL LEADER	TEACHER	STUDENT
	<p>education, allowing them to learn about balanced and purposeful use of digital technologies, its benefits and risks for themselves and their students, such as potential distractions, mental strain, and fatigue.</p>	<p>about balanced and purposeful use of digital technologies, and the benefits and risks for you and your students, such as potential distractions, mental strain, and fatigue.</p>	
12. CPD: online threats	<p>In our school, teachers are trained on how to manage and mitigate various online threats and protect personal data</p> <p>Choose 5 only if, in your opinion, the teachers at your school are trained on how to manage and mitigate various online threats and protect personal data, such as using secure platforms, limiting access to sensitive information, and changing passwords.</p>	<p>In our school, I am provided with training on how to manage and mitigate various online threats and protect personal data</p> <p>Choose 5 only if, in your opinion, you are trained on how to manage and mitigate various online threats and protect personal data, such as using secure platforms, limiting access to sensitive information, and changing passwords.</p>	
13. CPD: emerging technologies	<p>In our school, we support our teachers how to use emerging digital technologies, including the potential benefits and harms to well-being of teachers and students</p> <p>Choose 5 only if, in your opinion, your school supports teachers in learning to use emerging digital technologies (e.g. artificial intelligence and extended reality), including the potential benefits and harms to well-being.</p>	<p>In our school, I am provided with support to learn how to use emerging digital technologies, including the potential benefits and harms to me and my students' well-being</p> <p>Choose 5 only if, in your opinion, your school supports you in learning how to use emerging digital technologies (e.g. artificial intelligence and extended reality), including the potential benefits and harms to well-being.</p>	
Area E: Pedagogy: Supports and Resources			
14. Design of digital technologies*	<p>In our school, we use digital technologies that integrate various functions boosting the well-being of the school community</p> <p>Choose 5 only if, in your opinion, your school uses digital technologies that integrate various functions that boost the well-being of students and teachers, such as screen timers, blue light filters, appropriate colour</p>	<p>In our school, we use digital technologies that integrate various functions, boosting the well-being of myself and my students</p> <p>Choose 5 only if, in your opinion, your school uses digital technologies that integrate various functions that boost the well-being of you and your students, such as screen timers, blue light filters, appropriate colour</p>	<p>In our school, we use digital technologies that integrate various functions through which I can boost my well-being</p> <p>Choose 5 only if, in your opinion, at school you use digital technologies that integrates various functions that boost your well-being, such</p>

SELFIE area / Item title	SCHOOL LEADER	TEACHER	STUDENT
	schemes, no advertisements, 'Do not disturb' buttons, and the functionality to turn off notifications.	schemes, no advertisements, 'Do not disturb' buttons, and the functionality to turn off notifications.	as screen timers, blue light filters, appropriate colour schemes, no advertisements, 'Do not disturb' buttons, and the functionality to turn off notifications.
15. Activities to increase resilience	<p>Our teachers use various activities with digital technologies to boost students' and teachers' resilience in an online environment</p> <p>Choose 5 only if, in your opinion, the teachers at your school use various activities with digital technologies to boost students' and teachers' resilience in an online environment, such as virtual simulations and serious games that deal with various online risks (e.g., cyber-bullying, communication with strangers, data leaks).</p>	<p>I use various activities with digital technologies to boost students' and my own resilience in an online environment</p> <p>Choose 5 only if, in your opinion, you use various activities with digital technologies to boost the resilience of you and your students in an online environment, such as virtual simulations and serious games that deal with various online risks (e.g., cyber-bullying, communication with strangers, data leaks).</p>	<p>In our school, we conduct various activities with digital technologies through which I can boost my resilience in an online environment</p> <p>Choose 5 only if, in your opinion, your teachers use various activities with digital technologies to boost your resilience in an online environment, such as virtual simulations and serious games that deal with various online risks (e.g., cyber-bullying, communication with strangers, data leaks).</p>
16. Learning analytics	<p>In our school, we use various learning analytics to monitor technology usage and gain insights on how to improve well-being in digital education</p> <p>Choose 5 only if, in your opinion, your school actively uses a variety of learning analytics from the school's digital infrastructure to monitor technology usage and gain insights on how to improve well-being in digital education.</p>	<p>In our school, I use various learning analytics to monitor technology usage and gain insights on how to improve well-being in digital education</p> <p>Choose 5 only if, in your opinion, you actively use a variety of learning analytics from the school's digital infrastructure to monitor technology usage and gain insights on how to improve well-being in digital education.</p>	
Area F: Pedagogy: Implementation in the classroom			
17. Balanced use of digital technologies	<p>Our teachers use guidelines about balanced and purposeful use of technology, mixing traditional and digital teaching approaches in their classroom</p>	<p>I use guidelines developed by the school to ensure balanced and purposeful use of digital technology in my classroom, mixing traditional and digital teaching approaches</p>	<p>In our school, teachers use a variety of learning activities with and without the use of digital technologies</p>

SELFIE area / Item title	SCHOOL LEADER	TEACHER	STUDENT
	Choose 5 only if, in your opinion, the teachers at your school actively use guidelines about a balanced and purposeful use of digital technologies, mixing traditional and digital approaches in their classroom	Choose 5 only if, in your opinion, you actively use guidelines about a balanced and purposeful use of digital technologies, mixing traditional and digital approaches in your classroom	Choose 5 only if, in your opinion, your teachers use a great variety of learning activities with and without use of digital technologies, balancing the activities
18. Physical well-being	Our teachers incorporate regular breaks when using digital technologies to ensure their physical well-being Choose 5 only if, in your opinion, the teachers and students in your school incorporate physical activities and movement breaks to their days to ensure their physical well-being.	I incorporate regular breaks in my classroom when using digital technologies to ensure my own and students' physical well-being Choose 5 only if, in your opinion, you incorporate physical activities and movement breaks to their days to ensure the physical well-being of you and your students.	I have time at school for regular breaks to ensure my physical well-being Choose 5 only if, in your opinion, your teachers give you enough time at school for physical activities and movement breaks to ensure your physical well-being
Area G: Assessment Practices			
19. Online assessments	In our school, we take measures to ensure that digital assessments do not affect the psychological well-being of students and teachers Choose 5 only if, in your opinion, your school is prepared to mitigate and manage the challenges that come with online assessments to ensure the psychological well-being of teachers and students, preventing any additional stress which would not have been present in traditional offline exams (e.g., technical issues)	I am aware of and address the psychological well-being challenges that come with digital assessments Choose 5 only if, in your opinion, you are aware of and actively address the challenges that come with online assessments to ensure the psychological well-being of the students taking them, preventing any additional stress which would not have been present in traditional offline exams (e.g., technical issues)	In our school, I feel confident using digital technology for online assessments without it causing additional stress Choose 5 only if, in your opinion, you feel confident using digital technology for online assessments and it does not cause additional stress which would not have been present if the assessment was taken offline (e.g., technical issues)
20. Online grades*	In our school, we use online platforms where individual grades are not visible to everyone Choose 5 only if, in your opinion, your school uses online platforms which do not show student grades to everyone and which do not rank students by their grades, with only the class average displayed to allow for	In our school, we use online platforms where individual grades are not visible to everyone Choose 5 only if, in your opinion, your school uses online platforms which do not show student grades to everyone and which do not rank students by their grades, with only the class average displayed to allow	In our school, the online platforms used for assessment feedback ensure that my grades are not visible to others. Choose 5 only if, in your opinion, your school uses online platforms which do not show your grades to everyone and which do

SELFIE area / Item title	SCHOOL LEADER	TEACHER	STUDENT
	performance comparison among peers.	for performance comparison among peers.	not rank you and your peers based on your grades.
Area H: Student Digital Competence			
21. Student competence: use of digital technologies	<p>In our school, students learn about the balanced and purposeful use of digital technologies, and how to deal with benefits and potential risks to their well-being</p> <p>Choose 5 only if, in your opinion, the students in your school learn about a balanced and purposeful use of technology, with awareness about their well-being benefits and the potential risks, such as distractions, mental strain, fatigue, privacy, screen time, and how to deal with these building digital habits</p>	<p>In our school, students learn about the balanced and purposeful use of digital technologies, and how to deal with benefits and potential risks to their well-being</p> <p>Choose 5 only if, in your opinion, the students in your school learn about a balanced and purposeful use of technology, with awareness about their well-being benefits and the potential risks, such as distractions, mental strain, fatigue, privacy, screen time, and how to deal with these building digital habits</p>	<p>In our school, I learn about balanced and purposeful use of digital technologies that makes me aware of the benefits and potential risks to my well-being and how to deal with these</p> <p>Choose 5 only if, in your opinion, you learn about a balanced and purposeful use of technology, with awareness about the well-being benefits and the potential risks to you, such as distractions, mental strain, fatigue, privacy, screen time, and how to deal with these building digital habits</p>
22. Student competence: emerging technologies	<p>In our school, we support our students to learn how to use emerging digital technologies, including the potential benefits and harms to their well-being</p> <p>Choose 5 only if, in your opinion, your school supports its students to learn how to use emerging digital technologies (e.g., artificial intelligence, virtual reality tools), including the potential benefits and harms to their well-being (e.g., self-assurance, cognitive learning).</p>	<p>In our school, we support our students to learn how to use emerging digital technologies, including the potential benefits and harms to their well-being</p> <p>Choose 5 only if, in your opinion, your school supports its students to learn how to use emerging digital technologies (e.g., artificial intelligence, virtual reality tools), including the potential benefits and harms to their well-being (e.g., self-assurance, cognitive learning).</p>	<p>In our school, I learn how to use emerging digital technologies, including their potential benefits and harms to my well-being</p> <p>Choose 5 only if, in your opinion, you learn how to use emerging digital technologies such as artificial intelligence and virtual reality, including the potential benefits and harms to your well-being (e.g., self-assurance, cognitive learning).</p>
23. Curriculum	<p>In our school, the curriculum has provisions on well-being in digital education as part of students' digital competence development</p> <p>Choose 5 only if, in your opinion, your school</p>	<p>In our school, the curriculum has provisions on well-being in digital education as part of students' digital competence development</p> <p>Choose 5 only if, in your opinion, your school</p>	

SELFIE area / Item title	SCHOOL LEADER	TEACHER	STUDENT
	curriculum has provisions on well-being in digital education as part of students' digital competence development.	curriculum has provisions on well-being in digital education as part of students' digital competence development.	

Note: SELFIE WBDE items identified with "*" in their title (first column of this table) are not recommended to be used with students in primary education due to its complexity.

Source: JRC

Annex 8. List of engaged stakeholders

Table 6. List of participants to the Exploratory Interview

#	Stakeholder type	Name Surname	Organisation	Position
1	Civil society, NGOs, other organisations	Luís Manuel Pinto	Learning for Well-being Foundation	Director of Programs and Learning
2	Researchers, ind. experts, other projects	Halla B. Holmarsdottir	DigiGen project (Horizon 2020) / Oslo Metropolitan University, Norway	Project Coordinator / Professor at Oslo Metropolitan University
3	Researchers, ind. experts, other projects	Fulvio Corno	Politecnico di Torino, Italy	Full Professor, Rector's Advisor for Teaching Technologies

Source: JRC

Table 7. List of participants to the WBDE Policy interviews

#	Name surname	Organisation
1	Flora Megyeri	Higher Education, Ministry of Culture and Innovation, Government of Hungary
2	Katalin Zoltán	VET, Ministry of Culture and Innovation, Government of Hungary
3	-	VET, Ministry of Culture and Innovation, Government of Hungary
4	-	Ministry of Interior, Government of Hungary
5	-	Department of International Relations, Ministry of Culture and Innovation, Government of Hungary

Source: JRC

Table 8. List of participants to the EdTech Focus Group

#	Name Surname	Company	Position
1	Anestis Papadopoulos	Pi tech	Chief Scientific Officer
2	Cem Celepli Atci	Allbry AB	Chief Executive Officer
3	Dalila Rubino	xEDU	Head of Communication and External Relations
4	Darya Yegorina	CleverBooks	Director
5	Filomena von Zeipel	Esybee AB	Chief Visionary Officer
6	Rosa Pérez	Gaptain	Head of Digital Education
7	Tadas Bielskis	Three Cubes	Chief Executive Officer
8	Jeff Janover	ClassLink	VP of Security and Interoperability
9	Kim Dekeyser	Kimthousiast	Owner
10	-	Apple	Education Government Engagement

Source: JRC

Table 9. List of schools that participated in the study fieldwork

#	Country	School name (native language / English)	Education level targeted in this study
1	BG	Основно училище "Отец Паисий" Primary School "Otec Paisii"	Primary (ISCED 1)
2		Основно училище "Захарий Круша" Primary (and Lower Secondary) School "Zachary Krusha"	Lower secondary (ISCED 2)
3		Софийска професионална гимназия по електроника "Джон Атанасов" Sofia Vocational High School of Electronics "John Atanasov"	IVET (ISCED 3)
4	EL	Ημερήσιο Γυμνάσιο Άστρος Αρκαδίας High School of Astros Arcadia (with all levels of education)	Lower secondary (ISCED 2)
5		Εκπαιδευτήρια Καντά - Νηπιαγωγείο Δημοτικό Kantas Primary School	Private primary (ISCED 1)
6		8ο ΔΗΜΟΤΙΚΟ ΣΧΟΛΕΙΟ ΝΕΑΣ ΦΙΛΑΔΕΛΦΕΙΑΣ 8th Primary School of Nea Philadelphia	Public primary (ISCED 1)
7	LT	Alytaus Vidzgirio mokykla Alytus Vidzgiris school	Primary (ISCED 1)
8		Šiaulių Stasio Šalkauskio gimnazija Šiauliai Stasys Šalkauskis Gymnasium	Upper secondary (ISCED 3)
9		Vilniaus paslaugų verslo profesinio mokymo centras (LT IVET1) Vilnius Service Business Vocational Training Centre	IVET (ISCED 3)
10		Rokiškio profesinio mokymo centras (LT IVET2) Rokiškis Vocational Training Centre	IVET (ISCED 3)
11		Gargždų „Kranto“ progimnazija Gargždai "Kranto" Pro-Gymnasium	Lower secondary (ISCED 2)
12	FI	YA - Vocational College of Ostrobothnia	IVET (ISCED 3)

Source: JRC

Table 10. List of interviewed Practice Representatives

#	Name Surname	Practice title (EN)	Organisation/institution (EN)
1	Dimitra Dimitrakopoulou	Digital Media Literacy for Active Citizenship (DIMELI4AC)	Ellinogermaniki Agogi (Greece)
2	Daniel Kardefelt Winther	Responsible Innovation in Technology for Children (RITEC)	UNICEF
3	Eray Basar	Facts4All	European Schoolnet
4	Hans Martens	Social Media Literacy for Change	European Schoolnet
5	Maria Cristina Ponte	Youth Skills (ySKILLS)	NOVA University Lisbon (Portugal)
6	Biljana Volchevska	3D printing for education for visually impaired students (3D4VIP)	Koninklijke Visio (the Netherlands)
7	Prof. Antonia Liguori	SOLIS	Teesside University, Middlesbrough (UK)*
8	Sandra Liebender	ICT & Early School Leaving. Developing a New Methodology to Empower Children in Digital Wellbeing and Critical ThiNkinG (ENDING)	Digital Opportunities Foundation (Germany)

*at the time of the practice implementation worked at the Loughborough University (UK)

Source: JRC

Table 11. List of participants to the Final Validation Workshop

#	Stakeholder type	Name Surname	Organisation/institution (EN)	Country
1	Policy makers	Alessandro Brolpito	European Training Foundation	INT
2		Ana Hernández	INTEF, Ministry of Education	Spain
3		Viktors Kravčenko	Ministry of Education and Science	Latvia
4		Marek Woźniak	Educational Research Institute, Ministry of Education	Poland
5		Dora Šimunović	European Council for Steiner Waldorf Education	EU
6	School leaders	Eirini Symeonidou	European SchoolNet	EU
7		Dimitra Pournara	22nd Primary School of Larissa	Greece
8		-	Vilniaus Žirmūnų gimnazijos	Lithuania
9		Daniel Wisniewski	European Federation of Education Employers (EFEE)	EU
10		Marie-Céline Falisse	European Federation of Education Employers (EFEE)	EU
11		Ulrike Sievers	Waldorf High School	Germany
12		Hilla Helasaari	Business College Helsinki	Finland
13	Educators and Teacher trainers	Teresita Gravina	Liceo diaz università Federico II of Naples	Italy
14		Kornelia Lohynova	Hotelová akadémia	Slovakia

#	Stakeholder type	Name Surname	Organisation/institution (EN)	Country
15		Kristina Slišurić	Primary school "Matija Gubec" Cernik	Croatia
16		Mark Delahunty	St Mary's National School	Ireland
17		Nina Fabe	Independent expert	Slovenia
18		Patrick Camilleri	University of Malta	Malta
19		Luis Fernandes	CFAE-PVVC	Portugal
20	Students' representatives	Panagiotis Chatzimichail	Organising Bureau of European School Student Unions (OBESSU)	EU
21		Sergio Branca	Junior Achievement	EU
22	Parents' representatives	Claudio Masotti	European Parents Association	EU
23		Arja Krauchenberg	European Parents Association	EU
24		Márti Domokos	European Council for Steiner Waldorf Education	EU
25		Cecilia Skarka	Steiner Waldorf Parents	EU
26	EdTech providers	Anestis Papadopoulos	Pi tech	Greece
27		Filomena von Zeipel	Esybee AB	Sweden
28		Roberto Álvarez	Gaptain	Spain
29	Researchers	Giuseppina Mangione	Istituto Nazionale di Documentazione Innovazione e Ricerca Educativa - INDIRE	Italy
30		Mariano Fernandez-Enguita	Universidad Complutense de Madrid	Spain
31		Kim Sylwander	London School of Economics	UK
32		Antoine Bilgin	European Schoolnet	EU

Source: JRC

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