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Brief Report

Digital Literacy Education in School Settings: Student-Reported Acceptability and Self-Perceived Learning in a Paediatrician-Led Programme

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Highlights

What are the main findings?

- Most students rated the session positively (89.0% scored it 4 or 5 out of 5) and 81.0% reported having learned something new, with lower ratings in older age groups.
- Screen time and healthy habits were the most frequent topics of students' immediate intentions (42.9% of 487 codable responses). Intentions were not followed up, so behaviour change was not assessed.

What are the implications of the main findings?

- Although these results establish high student-reported acceptability, further longitudinal evaluation is required to substantiate objective learning outcomes and sustained behaviour change.
- The results indicate student-reported acceptability of a single session; they do not show actual learning, behaviour change or effectiveness.

Abstract

Background: School-based digital literacy education is one proposed strategy to reduce the harms of unguided digital media use in childhood. We describe a developmentally differentiated, single-session programme delivered by a paediatrician and report student-reported acceptability, self-perceived learning and immediate intentions. **Methods**: Description of a cross-sectional programme evaluation (private school group, northern Portugal, April 2026) delivered to students in Years 3 to 8 (n = 563; aged 7 to 14 years). Students completed an anonymous three-item questionnaire immediately after the session: satisfaction (1 to 5), self-perceived learning (yes/no) and intended changes (open-ended). **Results**: Median satisfaction was 5 (mean 4.37, SD 0.84), and 89.0% of students scored the session 4 or 5. Self-perceived learning was reported by 81.0%. Both outcomes were lower in older age groups ($p < 0.001$; small effect sizes). Of 487 codable open-ended responses, 117 (24.0%) were non-specific and 370 described a concrete intention, most often about screen time and healthy habits (209 responses; 42.9% of codable responses). **Conclusions**: Students reported high satisfaction and self-perceived learning. With no baseline, comparison group or follow-up, the study cannot show actual learning, behaviour change or effectiveness, and immediate intentions are only partly associated with later behaviour. Controlled studies with objective outcomes and follow-up are needed.

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Keywords: child neurodevelopment; digital literacy; digital well-being; paediatric health promotion; lifestyle habits; school-based intervention; screen time

1. Introduction

Children and adolescents are growing up in deeply digitalised environments, interacting with screens, platforms and algorithmically curated content from an increasingly early age [1]. Access to connected devices has expanded rapidly across European households, and Portuguese children are among those with the highest rates of daily internet use in their age group [1]. This ubiquity of digital engagement brings substantial opportunities for learning, communication, and creativity but also confers significant risks, including exposure to harmful content, cyberbullying, manipulative design features, privacy violations, and the erosion of critical information habits. Digital literacy, broadly defined as the ability to access, evaluate, use, and create information through digital technologies, has emerged as a key competency for full participation in contemporary civic and academic life. The European Commission's DigComp 2.2 framework identifies five core areas of digital competence: information and data literacy, communication and collaboration, digital content creation, safety, and problem solving [2]. In Portugal, the Student Profile at the End of Compulsory Schooling (PASEO) identifies information and communication literacy, critical thinking, and digital citizenship as core competencies to be developed throughout basic and secondary education [3]. Despite growing policy recognition, the systematic integration of digital literacy education in school curricula remains inconsistent, and existing programmes often lack developmental differentiation across age groups [4–6].

Programmes also differ in pedagogical strategy. Didactic formats may improve short-term factual knowledge but appear less likely to prompt behavioural reflection than interactive, developmentally adapted approaches [5,6]. Excessive or unguided screen use has been associated with sleep disturbance, displacement of physical activity and healthy routines, attentional difficulties, poorer academic performance and internalising problems [7–9]. Problematic use patterns and algorithm-driven design features have also been discussed in relation to digital addiction in young people [10,11]. These outcomes belong to a wider set of 24 h movement behaviours (sleep, physical activity and sedentary behaviour) that international guidelines treat as an integrated whole [12,13], so digital habits matter for child health beyond online safety.

Paediatric clinicians are increasingly recognised as having a role in promoting digital well-being, and school-based sessions could extend their reach beyond the consultation [14,15]. A paediatrician may contribute clinical knowledge about sleep, attention and development, experience of anticipatory guidance on screen use, and health-related examples that teachers may not routinely use. While such sessions can provide valuable health insights alongside the work of teachers and school staff, their practical delivery in real-world classrooms warrants examination.

This brief report evaluates a structured, single-session digital literacy initiative delivered by a paediatrician across primary and lower secondary classrooms. We report student-reported acceptability, self-perceived learning and immediate behavioural intentions. The findings are descriptive and are intended to inform the design of future controlled studies with objective learning and behavioural outcomes.

2. Materials and Methods

2.1. Design and Setting

This was a cross-sectional, school-based programme evaluation of student-reported acceptability, self-perceived learning and immediate intentions after a single digital literacy session. The sessions were delivered in classrooms of three schools from a private school group in northern Portugal during April 2026, at the schools' request, as part of an institutional health promotion and curricular enrichment initiative. The evaluation used a post-session questionnaire only. There was no baseline measurement, comparison group or follow-up.

2.2. Participants

All enrolled pupils attending Years 3 through 8 were eligible to participate. The overall cohort comprised 589 attendees, of whom 566 completed the post-session questionnaire, corresponding to a completion rate of 96.1%. Following the exclusion of three records presenting implausible or missing age values, the final analytic sample consisted of 563 students. For age-specific analyses, students were grouped by school cycle: 7 to 9 years (primary education, $n = 109$), 10 to 11 years (second cycle of basic education, $n = 167$) and 12 to 14 years (third cycle of basic education, $n = 286$). These three groups total 562 students. The remaining student, aged 16 years, is included in the overall estimates ($n = 563$) but was excluded from age-stratified analyses.

Sex and gender were not collected. The questionnaire was designed as brief, anonymous routine feedback for the schools, and no demographic variable other than age was requested, to safeguard pupils' anonymity. This prevented any analysis by sex or gender. It is a relevant omission, because patterns of digital media use may differ between boys and girls [16], and girls may be more likely to give socially desirable responses in self-report surveys [17], so any sex-specific pattern in acceptability or intentions could not be examined.

2.3. Programme

The programme consisted of a single 60 min interactive session, delivered to classes, with Years 3 to 6 taught jointly in mixed-age sessions and Years 7 and 8 in separate sessions, by a paediatrician with expertise in child neurodevelopment and digital health. It addressed six dimensions aligned with the European DigComp 2.2 framework [2] and with paediatric evidence on the risks of unguided digital media use: healthy habits and balance, privacy and security, digital footprint, relationships and communication, cyberbullying prevention, and information literacy. These dimensions reflect risks documented in children and adolescents, including privacy understanding [18,19], fear of missing out and problematic social media use [20,21], cyberbullying and its prevention [22,23], and misinformation [24–26].

Delivery was differentiated in two tiers: Years 3 to 6 and Years 7 and 8. Younger pupils (Years 3 to 6) completed concrete, gamified challenges, such as the Internet Traffic Light exercise to identify safe and risky online behaviours and the Re-A.C.T. protocol for responding to cyberbullying. Older pupils (Years 7 and 8) completed evaluative tasks on digital well-being, including a critique of persuasive platform design features, a profile privacy audit, and the SIFT method for verifying online information. Table 1 summarises the activities by dimension and tier. The developmental adaptation of the session was based on the author's clinical experience in child neurodevelopment and on activities adapted from the Common Sense Education digital citizenship resources [27], which are organised by school year. The content and activities were not subjected to formal validation, expert panel review or pilot testing prior to delivery.

Table 1. Content and delivery of the 60 min session, by dimension and delivery tier.

Dimension	Years 3 to 6	Years 7 and 8
Healthy habits and balance	Screen time schedules and balance between real and digital life	Challenge "Dismantle Addictive Design": identifying infinite scroll, notifications and the "For You Page"
Privacy and security	Not sharing personal data ("3 Golden Rules"); Internet Traffic Light activity	Challenge "The Overexposed Profile": audit of a profile with excessive personal information
Digital footprint	What is posted remains online; think before posting	Challenge "Positive Personal Brand"
Relationships and communication	Online kindness equals offline kindness; words hurt	Challenge "Online Conflict"
Cyberbullying prevention	Re-A.C.T. method (Recognise, Act, Confide, Transform); not being a passive bystander	Challenge "Response Protocol": four groups (victim, witness, school, family) analyse the same case; forms of cyberbullying and sources of help.
Information literacy	Checking the source before believing or sharing	SIFT method (Stop, Investigate the source, Find better coverage, Trace claims)

2.4. Questionnaire and Administration

A brief, three-item self-report questionnaire was administered immediately following the session. The instrument comprised (1) overall satisfaction on a five-point scale (1 = completely dissatisfied to 5 = completely satisfied), (2) a dichotomous item evaluating self-perceived learning (asking pupils whether they had acquired new knowledge or skills during the session; yes/no), and (3) an open-ended prompt exploring intended behavioural modifications regarding daily digital habits.

The questionnaire was written by the authors as routine feedback for the school. It is not a validated instrument, and no reliability or content validity was assessed. The yes/no item is a single self-report of perceived learning and does not measure knowledge. The questionnaire was completed digitally by the pupils on their own school iPads at the end of the session. Pupils were informed that responses were anonymous. The paediatrician who delivered the programme was not in the room; only classroom teachers were present, and they could not view the responses. Sessions for Years 3 to 6 were delivered jointly, and younger pupils (Years 3 and 4) were assisted by older pupils (Years 5 and 6) in the same session, whereas pupils in Years 7 and 8 attended separate sessions. Responses were anonymous and not linked to grading.

2.5. Ethical Procedures

Ethical approval, school authorisation and guardian information procedures are described in the Institutional Review Board and Informed Consent Statements. Participation in the questionnaire was voluntary and anonymous, and no direct identifiers or IP addresses were collected.

2.6. Data Analysis

Quantitative data were processed using descriptive metrics, including proportions, medians, and interquartile ranges. Non-parametric procedures were applied due to ordinal data distributions. Differences in satisfaction ratings across age groups were evaluated using the Kruskal–Wallis test, with post hoc pairwise Mann–Whitney U tests applying

Bonferroni correction (adjusted alpha level of 0.017) and rank-biserial correlation effect sizes. Differences in self-perceived learning were assessed using Pearson's chi-square test of independence, reporting Cramer's V. Statistical computations were executed in Python 3.13 using SciPy 1.18.1. Generative artificial intelligence was not utilised for data generation, code execution, or statistical synthesis.

Open-ended responses were analysed by inductive content analysis. After keyword-assisted indexing, the first author, who also delivered the sessions, read every response and assigned it to one category. Responses expressing more than one distinct concrete intention were assigned to a single "multiple concurrent themes" category, so categories are mutually exclusive. Ambiguous responses were re-examined iteratively until the classification was stable. Responses were classified as non-informative when they did not allow assignment to any thematic category. This included responses that were blank, unintelligible (for example, random characters), unrelated to the question, or too general to classify (for example, "everything" or "I liked it"). Non-informative responses ($n = 76$) were excluded from thematic coding, and percentages were calculated among the 487 codable responses. Each codable response was assigned to a single category. Responses that were interpretable but general were coded as non-specific intentions. A second coder was not used, so inter-rater reliability could not be assessed, and we do not claim thematic saturation, because the responses were brief.

3. Results

3.1. Student-Reported Satisfaction and Acceptability

Median satisfaction was 5.0 (interquartile range 4.0 to 5.0; mean 4.37, SD 0.84). A total of 501 of 563 students (89.0%; 95% CI 86.1 to 91.3) scored the session 4 or 5 out of 5. Satisfaction differed across the three age groups (Kruskal–Wallis $H(2) = 16.58$, $p < 0.001$), and younger pupils gave higher ratings (Table 2 and Figure 1). Pairwise comparisons showed that students aged 7 to 9 years (median 5.0, mean 4.54) gave higher ratings than students aged 12 to 14 years (median 4.0, mean 4.23; $U = 18{,}699$, $p < 0.001$, $|r| = 0.20$). Students aged 10 to 11 years (mean 4.49) also gave higher ratings than those aged 12 to 14 years ($U = 27{,}716$, $p = 0.002$, $|r| = 0.16$). There was no significant difference between students aged 7 to 9 and 10 to 11 years ($U = 9454$, $p = 0.527$). Effect sizes were small. The lower mean in the oldest group partly reflects a larger share of the lowest rating (10 of 286 students, 3.5%, versus 1 of 109 and 1 of 167 in the younger groups) as well as fewer ratings of 5 (Figure 1).

Table 2. Satisfaction and self-perceived learning by age group.

Age Group (Years)	*n*	Satisfaction, Mean	Self-Perceived Learning, *n/N* (% [95% CI])
7 to 9	109	4.54	103/109 (94.5 [88.5 to 97.5])
10 to 11	167	4.49	140/167 (83.8 [77.5 to 88.6])
12 to 14	286	4.23	212/286 (74.1 [68.8 to 78.9])
All students [1]	563	4.37 (SD 0.84)	456/563 (81.0 [77.5 to 84.0])

Note: CI, Wilson 95% confidence interval. [1] The overall row includes one student aged 16 years who is not in an age group (answered "yes" to the learning item). Age differences: satisfaction, Kruskal–Wallis $H(2) = 16.58$, $p < 0.001$; perceived learning, $\chi^2(2, N = 562) = 22.51$, $p < 0.001$, Cramér's $V = 0.20$.

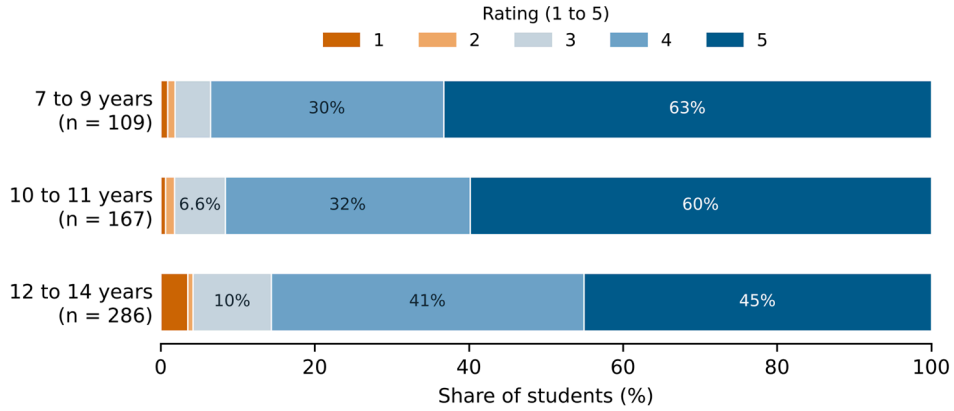

Figure 1. Distribution of satisfaction ratings (1 = completely dissatisfied to 5 = completely satisfied) by age group. Bars show the percentage of students giving each rating; percentages below 5% are not labelled. The student aged 16 years (rating 5) was excluded from the analysis.

3.2. Self-Perceived Learning

A total of 456 of 563 students (81.0%; 95% CI 77.5 to 84.0) answered "yes" when asked whether they had acquired new knowledge or skills. The proportion differed across age groups ($\chi^2(2, N = 562) = 22.51$, $p < 0.001$, Cramér's V = 0.20; Table 2): 103 of 109 students aged 7 to 9 years (94.5%), 140 of 167 aged 10 to 11 years (83.8%), and 212 of 286 aged 12 to 14 years (74.1%). The age-stratified counts add up to 455 of 562 because the student aged 16 years, who answered "yes", is included only in the overall figure. The effect size was small to moderate. This item records perceived learning only and cannot be read as evidence of knowledge gain.

3.3. Digital Behavioural Intentions

Among the 563 valid respondents, 487 pupils provided an interpretable answer to the open-ended prompt exploring intended modifications in their daily digital habits. The remaining 76 responses provided non-informative text and were excluded from thematic synthesis. Within the analysed corpus, 117 (24.0%) responses expressed general or non-specific intentions (such as taking more care online), whereas 370 (76.0%) responses articulated concrete, actionable behavioural changes (Table 3, Figure 2).

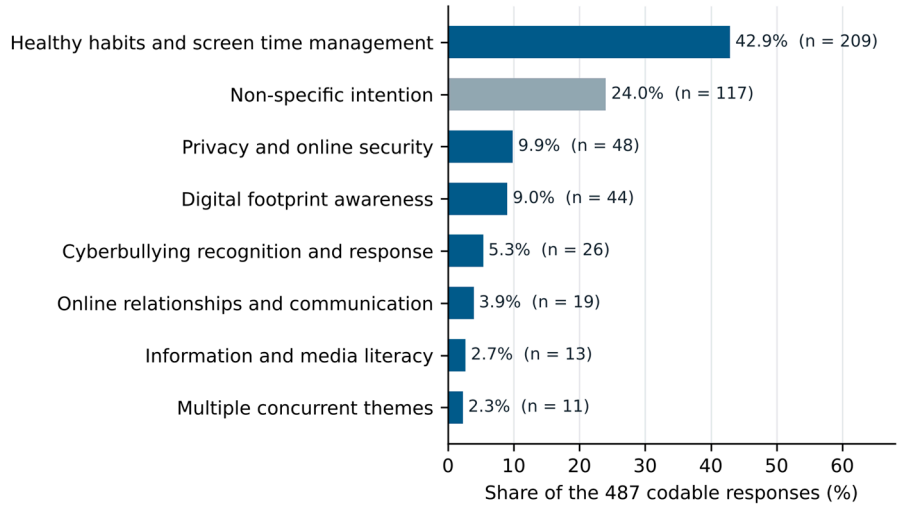

Figure 2. Categories of self-reported behavioural intentions. Percentages use the 487 codable responses as the denominator; the grey bar marks non-specific intentions. These are immediate intentions, not observed behaviour.

Table 3. Categories of self-reported behavioural intentions.

Category	Definition	*n*	% of Codable (*N* = 487)	% of Concrete (*N* = 370)
Healthy habits and screen time management	Reduce recreational screen use, avoid devices before bedtime, set offline time for study and physical activity	209	42.9	56.5
Non-specific intention	General intention	117	24.0	n/a
Privacy and online security	Not sharing personal information, protecting accounts and passwords, and avoiding contact with strangers online	48	9.9	13.0
Digital footprint awareness	Thinking before posting and being aware that what is published online remains and shapes one's image	44	9.0	11.9
Cyberbullying recognition and response	Not engaging in cyberbullying, recognising it, and reporting it or helping those affected	26	5.3	7.0
Online relationships and communication	Communicating respectfully and kindly online, and handling conflict or interaction with others in digital spaces	19	3.9	5.1
Information and media literacy	Checking sources and verifying information before believing or sharing it	13	2.7	3.5
Multiple concurrent themes	More than one distinct concrete intention	11	2.3	3.0

Note. Percentages use the 487 codable responses as the denominator (concrete responses: 370 = 487 minus 117 non-specific). Each response received one category. The 76 non-informative responses were excluded.

Healthy habits and screen time management was the most frequent concrete category (n = 209; 42.9% of the 487 codable responses and 56.5% of the 370 concrete responses). Within this category, students described reducing recreational screen use, avoiding devices before bedtime, or setting offline time for study and physical activity. Privacy and online security followed (n = 48; 9.9%), then digital footprint awareness (n = 44; 9.0%) and cyberbullying recognition and response (n = 26; 5.3%). Each response was assigned to one category. These intentions were recorded once, immediately after the session, and no later data are available. Differences in category distribution between age groups were not tested, so no age-related differences in intentions are reported.

4. Discussion

In this single-session evaluation, most students rated a paediatrician-led digital literacy session positively and reported having learned something new. These data provide evidence of student-reported acceptability.

Satisfaction and perceived learning were lower in older age groups. This pattern is compatible with older students having more prior knowledge or exposure, less novelty, or less interest in the activities [5], but several other explanations are equally plausible. Content, activities and age group were confounded, because the two delivery tiers differed in both. Class and teacher context, ceiling effects in younger children, and differences in response style may also contribute. Yes bias in response to yes/no questions has been documented mainly in preschool children and weakens with age [28], but socially desirable responding was found in more than one in five pupils in grades 4 and 5 in a survey of elementary school children [17]. The questionnaire was not designed to separate these explanations, so we cannot attribute the age gradient to developmental stage or to the differentiated format.

Most concrete intentions concerned screen time and healthy habits. These are immediate, self-reported statements collected once and should not be read as behaviour change. Intention is the proximal antecedent of behaviour in the Theory of Planned Behaviour, but the link is partial: experimental changes in intention produced smaller changes in behaviour (d = 0.36) [29], and many people intend to act but do not [30]. In young people, intentions predict later behaviour modestly to moderately [31,32]. We found no prospective studies testing whether intentions stated by children aged 7 to 11 years after a classroom session predict later screen behaviour, so this link is unknown in the youngest students.

Intervention evidence is consistent with this interpretation. A meta-analysis of media literacy interventions for adolescents found a larger effect on media literacy skills than on attitudes and intentions toward risky health behaviours [33]. School-based interventions reduce screen time only modestly [34], and reductions observed immediately after school-based eHealth interventions for adolescents were not sustained at follow-up, although evidence is mixed [35]. Behaviour change techniques such as goal setting, feedback and planning have been linked to larger reductions in children's screen time [36]. The intentions reported here should therefore be considered a short-term process outcome and a hypothesis for future testing. Future versions of the session could include planning components, such as written if–then plans, and be assessed using follow-up measures.

This study cannot show what the paediatrician added, because delivery was not compared with delivery by other professionals. It is nevertheless useful to separate components that may depend on clinical expertise from components that may be transferable. First, the health content (links between digital habits, sleep, attention, physical activity and emotional well-being, illustrated with clinical examples) draws on health training but could be packaged as structured material, training for teachers, or co-delivery with a health professional. Second, the pedagogical design, such as gamified challenges, the Internet Traffic Light exercise, privacy audits and the SIFT method, is not clinical and could be delivered by teachers or other school staff. Third, the credibility and perceived authority of a clinician may influence engagement, but this was not tested. In a meta-analysis of school-based interventions, externally led interventions were more successful at reducing problematic digital use, although the authors noted publication bias and limited power in subgroup analyses [37].

Scalability is a further concern. Not all schools, countries or health systems can provide paediatrician time for school sessions, and we did not estimate costs. Possible models include paediatricians training teachers, co-delivery by a paediatrician and a teacher, a single clinician-led session followed by teacher-led activities, and clinician-designed materials delivered by trained educators. Paediatricians, teachers, school psychologists and families could also collaborate in planning and evaluating such programmes. Future studies should compare paediatrician-led, trained-teacher-led and usual-practice delivery of the same curriculum, preferably in cluster-randomised or stepped-wedge designs, and should record fidelity and cost.

Several limitations should be considered. First, there was no baseline, comparison group or follow-up, so the study cannot show learning, behaviour change or effectiveness. Second, all outcomes were self-reported immediately after the session, which makes them susceptible to social desirability. Third, the three-item questionnaire was not validated, its comprehension across ages 7 to 14 years was not tested, and perceived learning was measured with a single yes/no item. Fourth, the open-ended responses were coded by one researcher who also delivered the sessions, which introduces a risk of observer or confirmation bias, and inter-rater reliability could not be assessed. Fifth, we had no objective measures of screen time, sleep, physical activity or sedentary behaviour, which are the outcomes a digital literacy programme would ultimately aim to influence. Sixth, sex was

not collected, and data came from one private school group, which limits generalisability to other settings. Seventh, answers such as "I don't know" were classified as non-informative and excluded, so the findings describe the pupils who articulated an intention. Eighth, age, content and activities were confounded, so age-related differences cannot be attributed to a single cause.

5. Conclusions

In this single-session evaluation, students reported high satisfaction and self-perceived learning after a paediatrician-led digital literacy session, with lower ratings in older age groups, and the most frequent concrete intention concerned screen time and healthy habits. These findings support student-reported acceptability only. Without a baseline, comparison group or follow-up, they do not show actual learning, behaviour change or effectiveness, and immediate intentions are only partly associated with later behaviour. Controlled studies with objective outcomes, follow-up, and comparison of delivery by paediatricians, teachers and other professionals are needed before the model is recommended for wider use.

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Institutional Review Board Statement: The study protocol was approved by the Joint Ethics Committee of Santo António Local Health Unit and School of Medicine and Biomedical Sciences (code: 2024/CE/P24(P438/2024/CETI); 11 September 2024) in accordance with the Declaration of Helsinki, with additional school cohorts participating under written school directorate authorisation for internal educational evaluation (Law no. 21/2014 exempt). Data were collected strictly anonymously (Regulation EU 2016/679, Recital 26; Law no. 58/2019).

Informed Consent Statement: Prior information regarding the educational activity and post-intervention questionnaire was communicated to legal guardians through standard school communication channels. Only students whose guardians provided the corresponding authorisation took part in each component. Participation in the post-session questionnaire was entirely voluntary, unlinked to academic assessment, and strictly anonymous, collecting no directly or indirectly identifiable personal data.

Data Availability Statement: The data presented in this study are available on request from the corresponding author due to privacy agreements and school approval requirements.

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Conflicts of Interest: The authors declare no conflicts of interest.

Abbreviations

The following abbreviations are used in this manuscript:

PASEO	Student Profile at the End of Compulsory Schooling
DigComp	Digital Competence Framework for Citizens
SIFT	Stop, Investigate the source, Find better coverage, Trace claims
IQR	Interquartile Range
SD	Standard Deviation

References

1. Smahel, D.; Machackova, H.; Mascheroni, G.; Dedkova, L.; Staksrud, E.; Ólafsson, K.; Livingstone, S.; Hasebrink, U. *EU Kids Online 2020: Survey Results from 19 Countries*; EU Kids Online, London School of Economics and Political Science: London, UK, 2020. Available online: https://www.lse.ac.uk/media-and-communications/research/research-projects/eu-kids-online (accessed on 29 September 2026).
2. Vuorikari, R.; Kluzer, S.; Punie, Y. *DigComp 2.2: The Digital Competence Framework for Citizens*; Publications Office of the European Union: Luxembourg, 2022. [CrossRef] [PubMed]
3. Martins, G.O.; Gomes, C.A.S.; Brocardo, J.M.L.; Pedroso, J.M.A.; Carrilho, J.L.C.; Silva, J.M.C.; Encarnação, M.M.A.C.P.; Horta, M.J.C.S.; Calçada, M.T.A.S.C.; Rodrigues, S.M.C. *Perfil dos Alunos à Saída da Escolaridade Obrigatória*; Ministério da Educação/Direção-Geral da Educação: Lisbon, Portugal, 2017.
4. Suárez-Perdomo, A.; Garcés-Delgado, Y.; Arvelo-Rosales, C.N. Systematic review on adolescents' construction of media literacy in educational settings. *Rev. Educ.* **2025**, *13*, e70048. [CrossRef]
5. Buchan, M.C.; Bhawra, J.; Katapally, T.R. Navigating the digital world: Development of an evidence-based digital literacy program and assessment tool for youth. *Smart Learn. Environ.* **2024**, *11*, 8. [CrossRef]
6. Ilomäki, L.; Lakkala, M.; Kallunki, V.; Mundy, D.; Romero, M.; Romeu, T.; Gouseti, A. Critical digital literacies at school level: A systematic review. *Rev. Educ.* **2023**, *11*, e3425. [CrossRef]
7. Mancone, S.; Corrado, S.; Tosti, B.; Masala, D. Integrating digital and interactive approaches in adolescent health literacy: A comprehensive review. *Front. Public Health* **2024**, *12*, 1387874. [CrossRef] [PubMed]
8. Liu, J.; Riesch, S.; Tien, J.; Lipman, T. Screen media overuse and associated physical, cognitive, and emotional/behavioral outcomes in children and adolescents: An integrative review. *J. Pediatr. Health Care* **2022**, *36*, 99–109. [CrossRef] [PubMed]
9. Oswald, T.K.; Rumbold, A.R.; Kedzior, S.G.E.; Moore, V.M. Psychological impacts of "screen time" and "green time" for children and adolescents: A systematic scoping review. *PLoS ONE* **2020**, *15*, e0237725. [CrossRef] [PubMed]
10. Tabish, S.A. From evolution to obsession: Understanding digital addiction among youth in the modern age. *Am. J. Health Res.* **2025**, *13*, 248–258. [CrossRef]
11. De, D.; El Jamal, M.; Aydemir, E.; Al-Hasan, M. Social media algorithms and teen addiction: Neurophysiological impact and ethical considerations. *Cureus* **2025**, *17*, e77145. [CrossRef] [PubMed]
12. Bull, F.C.; Al-Ansari, S.S.; Biddle, S.; Borodulin, K.; Buman, M.P.; Cardon, G.; Carty, C.; Chaput, J.-P.; Chastin, S.; Chou, R.; et al. World Health Organization 2020 guidelines on physical activity and sedentary behaviour. *Br. J. Sports Med.* **2020**, *54*, 1451–1462. [CrossRef] [PubMed]
13. Tremblay, M.S.; Carson, V.; Chaput, J.-P.; Gorber, S.C.; Dinh, T.; Duggan, M.; Faulkner, G.; Gray, C.E.; Gruber, R.; Janson, K.; et al. Canadian 24-Hour Movement Guidelines for Children and Youth: An integration of physical activity, sedentary behaviour, and sleep. *Appl. Physiol. Nutr. Metab.* **2016**, *41*, S311–S327. [CrossRef] [PubMed]
14. Holland Brown, T.M.; Bewick, M. Digital health education: The need for a digitally ready workforce. *Arch. Dis. Child. Educ. Pract. Ed.* **2023**, *108*, 214–217. [CrossRef] [PubMed]
15. Canadian Paediatric Society, Digital Health Task Force. Digital media: Promoting healthy screen use in school-aged children and adolescents. *Paediatr. Child Health* **2019**, *24*, 402–417. [CrossRef] [PubMed]
16. Roussel-Ouellet, J.; Beaulieu, D.; Vézina-Im, L.-A.; Turcotte, S.; Labbé, V.; Bouchard, D. Psychosocial correlates of recreational screen time among adolescents. *Int. J. Environ. Res. Public Health* **2022**, *19*, 16719. [CrossRef] [PubMed]
17. Wang, M.D.; Zang, X. Can we trust children's self-reports? Examining socially desirable responses in elementary school surveys. *Int. J. Educ. Methodol.* **2025**, *11*, 351. [CrossRef]
18. Stoilova, M.; Nandagiri, R.; Livingstone, S. Children's understanding of personal data and privacy online: A systematic evidence mapping. *Inf. Commun. Soc.* **2021**, *24*, 557–575. [CrossRef]
19. Vespoli, G.; Taddei, B.; Imbimbo, E.; Ferrara, M. The concept of privacy in the digital world according to teenagers. *J. Public Health* **2025**, *33*, 2731–2742. [CrossRef]
20. Servidio, R.; Soraci, P.; Griffiths, M.D.; Demetrovics, Z. Fear of missing out and problematic social media use: A serial mediation model of social comparison and self-esteem. *Addict. Behav. Rep.* **2024**, *19*, 100536. [CrossRef] [PubMed]
21. Fabris, M.A.; Marengo, D.; Longobardi, C.; Settanni, M. Investigating the links between fear of missing out, social media addiction, and emotional symptoms in adolescence. *Addict. Behav.* **2020**, *106*, 106364. [CrossRef] [PubMed]
22. Zhu, C.; Huang, S.; Evans, R.; Zhang, W. Cyberbullying among adolescents and children: A comprehensive review of the global situation, risk factors, and preventive measures. *Front. Public Health* **2021**, *9*, 634909. [CrossRef] [PubMed]
23. Ng, E.D.; Chua, J.Y.X.; Shorey, S. The effectiveness of educational interventions on traditional bullying and cyberbullying among adolescents: A systematic review and meta-analysis. *Trauma Violence Abus.* **2022**, *23*, 132–151. [CrossRef] [PubMed]
24. Oliveira, L.; Araújo, I.; Abreu, S.; Macedo, M. Adolescents, media literacy, and misinformation: The cognitive challenges of fake news detection. *Media Lit. Acad. Res.* **2025**, *8*, 112–128. [CrossRef]

25. Kyprianos, K.; Klada, S.; Katsira, G.; Tsami, E. Fake news and information literacy: The case of the "Secret School" in an educational context. *J. Librariansh. Inf. Sci.* **2025**, *58*, 1465–1481. [CrossRef]
26. Adjin-Tettey, T.D. Combating fake news, disinformation, and misinformation: Experimental evidence for media literacy education. *Cogent Arts Humanit.* **2022**, *9*, 2037229. [CrossRef]
27. Common Sense Education. Digital Citizenship Curriculum. Available online: https://www.commonsense.org/education/digital-citizenship (accessed on 31 March 2026).
28. Fritzley, V.H.; Lee, K. Do young children always say yes to yes-no questions? A metadevelopmental study of the affirmation bias. *Child Dev.* **2003**, *74*, 1297–1313. [CrossRef] [PubMed]
29. Webb, T.L.; Sheeran, P. Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychol. Bull.* **2006**, *132*, 249–268. [CrossRef] [PubMed]
30. Sheeran, P.; Webb, T.L. The intention-behavior gap. *Soc. Personal. Psychol. Compass* **2016**, *10*, 503–518. [CrossRef]
31. Riebl, S.K.; Estabrooks, P.A.; Dunsmore, J.C.; Savla, J.; Frisard, M.I.; Dietrich, A.M.; Peng, Y.; Zhang, X.; Davy, B.M. A systematic literature review and meta-analysis: The Theory of Planned Behavior's application to understand and predict nutrition-related behaviors in youth. *Eat. Behav.* **2015**, *18*, 160–178. [CrossRef] [PubMed]
32. Murnaghan, D.; Blanchard, C.M.; Rodgers, W.M.; LaRosa, J.N.; MacQuarrie, C.R.; MacLellan, D.L.; Gray, B.J. Predictors of physical activity, healthy eating and being smoke-free in teens: A theory of planned behaviour approach. *Psychol. Health* **2010**, *25*, 925–941. [CrossRef] [PubMed]
33. Vahedi, Z.; Sibalis, A.; Sutherland, J.E. Are media literacy interventions effective at changing attitudes and intentions towards risky health behaviors in adolescents? A meta-analytic review. *J. Adolesc.* **2018**, *67*, 140–152. [CrossRef] [PubMed]
34. Lai, N.; Lim, Y.S.; Chaiyakunapruk, N.; Lee, S.W.H.; Liabsuetrakul, T.; Sabbir, M.; Mahmud, S.H.; Siddiqi, U.R.; Ahmed, T.; Hasan, F.U.; et al. The effectiveness of school-based interventions for reducing screen time: A systematic review and meta-analysis. *Child Adolesc. Ment. Health* **2025**, *30*, 223–237. [CrossRef] [PubMed]
35. Champion, K.E.; Parmenter, B.; McGowan, C.; Spring, B.; Wafford, Q.E.; Gardner, L.A.; Thornton, L.; McBride, N.; Barrett, E.L.; Teesson, M.; et al. Effectiveness of school-based eHealth interventions to prevent multiple lifestyle risk behaviours among adolescents: A systematic review and meta-analysis. *Lancet Digit. Health* **2019**, *1*, e206–e221. [CrossRef] [PubMed]
36. Jones, A.; Armstrong, B.; Weaver, R.G.; Parker, H.; von Klinggraeff, L.; Beets, M.W. Identifying effective intervention strategies to reduce children's screen time: A systematic review and meta-analysis. *Int. J. Behav. Nutr. Phys. Act.* **2021**, *18*, 126. [CrossRef] [PubMed]
37. Žmavc, M.; Horvat, J.; Židan, M.; Selak, Š. The effectiveness of school-based interventions to reduce problematic digital technology use and screen time: A systematic review and meta-analysis. *J. Behav. Addict.* **2025**, *14*, 571–589. [CrossRef] [PubMed]

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