EVIDENCE SUBMISSION

UK Department for Education

Open Call for Evidence:

Early Years Screen Time and Usage

Screen-Based Assistive Technology for Children Ages 0–5 with Special Educational Needs and Disabilities (SEND)

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Executive Summary

This evidence submission addresses a critical gap in the Department for Education's open call on early years screen time and usage: the systematic exclusion of children with special educational needs and disabilities (SEND) from the research base that informs screen time policy.

The evidence presented here, drawn from 80+ peer-reviewed studies including 15+ randomised controlled trials and 20+ systematic reviews, demonstrates that screen-based technology is not merely permissible for young children with disabilities. For many, it is the only means of communication, learning, and social participation available to them.

Vanderloo et al. (2025) represents the first systematic review to include children with disabilities in screen time research. The authors found that most prior studies explicitly exclude children with autism, ADHD, intellectual disabilities, and other neurodevelopmental conditions from their samples. This means that the evidence base currently informing screen time guidance does not account for the population most likely to benefit from screen-based interventions, and most likely to be harmed by blanket restrictions.

The central recommendation of this submission is that any DfE guidance on early years screen time must explicitly distinguish between recreational screen consumption and assistive, therapeutic, and educational technology use for children with SEND. This is not a minor caveat. There is a documented evidence base showing that restricting or removing assistive technology causes measurable harm to children with disabilities (Stramondo 2020; Patrus 2021; Botelho 2021). Guidance that fails to make this distinction does not simply overlook disabled children; it actively authorises the removal of medical and educational necessities by giving practitioners and parents a policy basis for restricting technology these children depend on for communication, learning, and participation.

Scope of Evidence

This brief covers screen-based interventions for children ages 0 to 5 across five disability categories: Down syndrome, cerebral palsy, autism spectrum disorder, speech and language disorders, and hearing and visual impairments. Evidence includes randomised controlled trials, systematic reviews, meta-analyses, and policy documents from the WHO, AAP, IDEA (US), and the UK SEND Code of Practice.

The Problem: Exclusionary Research Methods

The research base informing current screen time recommendations suffers from a systematic methodological flaw: it excludes the children most affected by screen time policy.

International assessments used to measure the impact of technology on learning outcomes (PISA, TIMSS, NAEP) allow exclusion of students with "moderate to severe" cognitive, behavioural, and emotional disabilities. Schuelka (2013) documented that US state exclusion rates for students with disabilities in these assessments ranged from 4% to 56%. When researchers then cite these assessments as evidence that screens harm learning, they are drawing conclusions from datasets that removed disabled students before measurement.

This pattern extends to the primary research. A 2020 JAMA Pediatrics meta-analysis on language skills and screen use explicitly excluded children with autism spectrum disorder and intellectual disabilities from its sample. The resulting finding, that screen time is associated with lower language outcomes, was then cited in policy contexts without the caveat that it does not apply to the population most likely to use screens as language tools.

The AAP's 2016 "Media and Young Minds" policy statement recommends limiting screen time for children under 5 but contains no explicit disability exception. It was not until the AAP's 2025 clinical report on prescribing assistive technology that the organisation stated: "Children at any age who are nonverbal or have unreliable intelligible speech are potential candidates for AAC" and that "use of AAC does not prevent or limit verbal language acquisition."

The gap between these two documents, nine years of screen time guidance without an assistive technology carve-out, illustrates the problem this submission seeks to address.

Evidence by Disability Type

Down Syndrome

Children with Down syndrome experience significant speech and language delays, with expressive language particularly affected. Screen-based AAC and vocabulary interventions show consistent positive outcomes for this population.

Naess et al. (2022) conducted an RCT with 103 children using a digital vocabulary intervention (DSL+), finding moderate effect sizes for both expressive (d=0.429) and receptive (d=0.447) language gains. Kent-Walsh et al. (2025) published the first RCT of aided AAC (iPad with Proloquo2Go) specifically for children with Down syndrome, demonstrating improved generative language use. Seager et al. (2022) conducted a systematic review of 11 studies covering 242 children ages 0 to 6, finding positive outcomes in 9 of 11 studies, with interventions co-delivered by parents and clinicians showing the strongest results.

Barbosa et al. (2018) conducted a scoping review of AAC interventions for children with Down syndrome and found that speech-generating devices and PECS were the most commonly used tools, with evidence that both contributed to improvements in communication and socialisation. Notably, screen-based SGDs were well-represented in the literature, suggesting that the delivery mechanism plays a meaningful role in intervention accessibility and engagement.

Cerebral Palsy

For children with cerebral palsy, screen-based technology often represents the primary interface for communication and motor skill development. The evidence base is strong and growing.

AlSoqih et al. (2025) conducted a meta-analysis of VR interventions for children with CP, finding a large effect size (SMD=0.98) specifically for children under 6. Karlsson et al. (2019) demonstrated that eye-gaze communication technology is feasible for children as young as 3, with participants improving on goal achievement measures over a 6-week trial. Abd-

Elfattah et al. (2024) found significant improvements in dexterity and pinch strength using tablet-based fine motor interventions with 60 children ages 5 to 7.

Drager (2023) conducted a systematic review concluding that it is never too early to implement AAC intervention for children under six years of age. Smith and Hustad (2015) found that early AAC introduction at age 2 was appropriate and that receptive language was the strongest predictor of communication outcomes. The clinical implication is clear: delaying screen-based communication tools on the basis of age-based screen time guidance would be actively harmful to this population.

Autism Spectrum Disorder

Autism has the most robust evidence base for screen-based early intervention, which is notable given that it is also one of the conditions most frequently excluded from screen time research.

Dawson et al. (2010) published the landmark Early Start Denver Model RCT, showing IQ improvements of 17.6 points and normalised brain activity in children who received early intervention beginning at 18 to 30 months. While not exclusively screen-based, the ESDM framework has been successfully adapted for telehealth delivery. Shin et al. (2025) reviewed 18 studies of telehealth early intervention for children ages 0 to 3 and found outcomes comparable or superior to in-person delivery for communication, physical, and social-emotional outcomes.

Lorah et al. (2022) conducted a meta-analysis of mobile speech-generating devices for children with autism, finding moderate to strong positive effects across 36 participants, with 31 of 36 preferring high-tech SGDs over low-tech alternatives. Perochon et al. (2023) published in Nature Medicine a study of the SenseToKnow app, a tablet-based digital phenotyping tool developed by researchers at Duke University and Princeton University that uses computer vision to analyse social attention, facial expressions, and head movements in toddlers during paediatric visits. In a study of 475 children aged 17 to 36 months, it achieved an AUC of 0.90, sensitivity of 87.8%, and specificity of 80.8% for autism detection, using only a standard tablet without specialised equipment.

Ophir et al. (2023) conducted a meta-analysis on screen time and autism that found a positive association, but critically noted that after adjusting for publication bias, the effect became nonsignificant. They identified reverse causality as a likely confound: children with autism may seek out screen-based activities for sensory regulation and social avoidance, not because screens caused or worsened their condition. This distinction between correlation and causation is precisely what screen time policy must account for.

Speech and Language Disorders

Jesus et al. (2019) conducted an RCT comparing tablet-based speech therapy with traditional face-to-face therapy for 22 children ages 3 to 6 with speech sound disorders. They found no significant difference between conditions: the tablet was as effective as the therapist. Carson (2020) tested phonological awareness apps with children with developmental language disorder and found large effect sizes (d=1.86 for blending, d=1.92 for letter-sound knowledge).

An Italian pilot study (2020) tested parent-mediated intervention for late talkers aged 18 to 36 months and found a 63% recovery rate in the intervention group versus 35% in controls ($p=0.047$). Zhou et al. (2024) reviewed 13 studies covering 961 children and found that digital vocabulary interventions were beneficial, with phonological skills being the most frequently and successfully targeted domain.

These findings are particularly relevant to the 0-5 age range. Speech and language disorders are among the most common developmental concerns identified in early years settings, and the evidence shows that screen-based delivery of therapeutic content produces outcomes equivalent to or exceeding traditional methods.

Hearing and Visual Impairments

Berber and Cetinkaya (2025) conducted an RCT of mobile game-based auditory training for 24 preschool children (ages 30 to 60 months) with cochlear implants, finding significant improvements in auditory perception across all subtests ($p<0.05$). A Northwestern University team (2025) conducted a telehealth RCT with 96 parent-child dyads, finding large effects for parent strategy use ($d=1.57$) and moderate effects for child communication ($d=0.59$) in children ages 12 to 18 months with hearing loss.

Blaiser et al. (2013) compared tele-intervention with in-person early intervention for families of infants and toddlers with hearing loss and found that the telehealth group achieved higher expressive language scores ($p=0.03$) at lower cost. For children with cortical visual impairment, Delay et al. (2023) reviewed 23 studies and found improved visual attention ($p=0.001$) with screen-based visual stimulation, though the overall evidence level remains low.

The cochlear implant rehabilitation evidence is particularly instructive for this DfE call. A child using a tablet-based auditory training app after cochlear implant surgery is engaged in medically necessary rehabilitation. Under any blanket screen time recommendation, this activity would be counted as screen time indistinguishable from watching cartoons. The distinction is not merely semantic; it is clinical.

Policy Landscape

Several international bodies have begun to address the assistive technology gap in screen time guidance, though inconsistently.

The WHO's 2019 guidelines on physical activity and sedentary behaviour for children under 5 acknowledge that they "do not specifically address children with disabilities" and recommend parents "seek additional advice from health professionals." This effectively delegates the question rather than answering it.

The AAP's 2016 "Media and Young Minds" statement contains no disability exception. The AAP's 2025 prescribing assistive technology clinical report states that AAC is appropriate "at any age" for children who are nonverbal, but this document is not cross-referenced in the screen time guidance.

Canada's ParticipACTION Ability Toolkit provides the clearest model, defining "recreational screen time" as distinct from screen use for "school, work, health, or communication

purposes." This definitional approach, distinguishing by purpose rather than imposing blanket duration limits, aligns with the evidence presented in this submission.

The UK's own SEND Code of Practice (2015) requires that joint commissioning for children with SEND include "assistive technology," "specialist equipment," and "speech and language therapy." Any DfE screen time guidance that does not explicitly exempt SEND-mandated technology use would create a direct conflict with existing statutory provisions.

Documented Harm from Technology Removal

The evidence is not limited to positive outcomes from assistive technology. There is a documented evidence base showing harm when assistive technology is removed or restricted.

Stramondo (2020) argues that disabled people have a right to assistive technology and that removing it constitutes a harm. Patrus (2021) documents technological abuse through the removal of assistive devices, particularly affecting women with disabilities and disabled children. Botelho (2021) found that inadequate or absent access to assistive technology excludes children with disabilities from education. Nicolson et al. (2012) found that assistive technology reduces caregiver burden; removal therefore increases burden on both children and families.

These findings mean that any screen time guidance applied without disability exceptions does not simply fail to help children with SEND. It actively risks harm by providing a policy basis for restricting access to technology these children depend on.

Recommendations

1. Explicitly distinguish recreational screen time from assistive, therapeutic, and educational technology use in all DfE guidance on early years screen time.
2. Include a SEND exception clause in any screen time recommendations, stating that guidance does not apply to technology use documented in a child's EHCP or SEND Support Plan, or recommended by a qualified speech and language therapist.
3. Adopt a purpose-based definitional framework (following the Canadian model) that classifies screen use by function rather than imposing blanket duration limits.
4. Cross-reference the SEND Code of Practice (2015) in any guidance to ensure alignment with existing statutory provisions for assistive technology.
5. Fund targeted research on screen-based interventions for under-studied populations, particularly children with intellectual disabilities (non-syndromic), multiple and complex disabilities, and cortical visual impairment.
6. Mandate assistive technology assessment for all children identified with SEND in the Early Years Foundation Stage, ensuring that access to appropriate technology is not delayed by screen time concerns.

Proposed Guidance Text

Government bodies benefit from specific, adoptable language. The following clause is offered for consideration in any forthcoming DfE guidance on early years screen time:

Recommended Exception Clause

Screen time limits recommended in this guidance do not apply to screen use documented in an Education, Health and Care Plan (EHCP) or SEND Support Plan, or recommended by a qualified speech and language therapist, occupational therapist, or other registered health professional for communication, regulation, or accessibility purposes.

Key References

This submission draws on 80+ peer-reviewed studies. The following represent the highest-quality evidence cited above. Full reference list and supporting data files are available on request.

Authors	Year	Title / Finding / DOI
Vanderloo LM et al.	2025	Screen time among children and youth with disabilities: A systematic review and meta-analysis. DOI: 10.1111/cch.70136
Leonet O et al.	2022	A systematic review of augmentative and alternative communication interventions for children aged from 0 to 6 years. DOI: 10.1044/2022_LSHSS-21-00191
Shin Y, Park EJ, Lee A	2025	Early Intervention for Children With Developmental Disabilities and Their Families via Telehealth: Systematic Review. DOI: 10.2196/66442
Dawson G et al.	2010	Randomized, Controlled Trial of an Intervention for Toddlers With Autism: The Early Start Denver Model. DOI: 10.1542/peds.2009-0958
Naess KAB et al.	2022	A Randomized Trial of the Digital Down Syndrome LanguagePlus (DSL+) Vocabulary Intervention Program. DOI: 10.1177/07419325211058400
AlSoqih et al.	2025	Efficacy of Virtual Reality Interventions for Motor Function Improvement in Cerebral Palsy Patients: Systematic Review and Meta-Analysis. DOI: 10.3390/jcm14238388
Drager KDR	2023	Systematic review supports that it is never too early to implement AAC intervention for children under six years of age. DOI: 10.1080/17489539.2024.2381883
Jesus LMT et al.	2019	Comparing Traditional and Tablet-Based Intervention for Children With Speech Sound Disorders: A Randomized Controlled Trial. DOI: 10.1044/2019_jslhr-s-18-0301
Carson K	2020	Can an app a day keep illiteracy away? Piloting the efficacy of Reading Doctor apps for preschoolers with developmental language disorder. DOI: 10.1080/17549507.2019.1667438
Berber G, Cetinkaya MM	2025	Mobile game-based auditory training as an adjunct to aural rehabilitation in preschool children with cochlear implants: a randomised feasibility trial. DOI: 10.1080/14992027.2025.2607535
Blaiser KM et al.	2013	Measuring Costs and Outcomes of Tele-Intervention When Serving Families of Children Who Are Deaf/Hard-of-Hearing. DOI: 10.5195/ijt.2013.6129
Schuelka MJ	2013	Excluding students with disabilities from the culture of achievement: the case of the TIMSS, PIRLS, and PISA. DOI: 10.1080/02680939.2012.708789

Ophir Y et al.	2023	Screen Time and Autism Spectrum Disorder: A Systematic Review and Meta-Analysis. DOI: 10.1001/jamanetworkopen.2023.46775
Kent-Walsh J et al.	2025	Generative Language Intervention for Young Children With Down Syndrome Using Augmentative and Alternative Communication: A Randomized Controlled Trial. DOI: 10.1044/2025_LSHSS-24-00117
WHO/UNICEF	2022	Global Report on Assistive Technology. who.int/publications/i/item/9789240049451
Stramondo JA	2020	The Right to Assistive Technology. DOI: 10.1007/s11017-020-09527-8
AAP	2025	Prescribing Assistive Technology: Focus on Children With Complex Communication Needs: Clinical Report. DOI: 10.1542/peds.2025-072216
Perochon S et al.	2023	Early detection of autism using digital behavioral phenotyping. Nature Medicine, 29, 2489-2497. DOI: 10.1038/s41591-023-02574-3
Nicolson A et al.	2012	Impact of assistive technology on family caregivers of children with physical disabilities: a systematic review. Disability and Rehabilitation: Assistive Technology, 7(5), 345-349. DOI: 10.3109/17483107.2012.667194
Barbosa RTA et al.	2018	Augmentative and alternative communication in children with Down's syndrome: a systematic review. BMC Pediatrics, 18, 160. DOI: 10.1186/s12887-018-1144-5
Botelho SMA	2021	Childhood and Assistive Technology: Growing with opportunity, developing with technology. Assistive Technology, 33(sup1), 87-93. DOI: 10.1080/10400435.2021.1971330
Patrus R	2021	Technological abuse through the removal of assistive devices. In: Technology-Facilitated Violence and Abuse. Routledge.
Delay A et al.	2023	Interventions for children with cerebral visual impairment: A scoping review. Developmental Medicine and Child Neurology, 65(4), 469-478. DOI: 10.1111/dmcn.15431
Abd-Elfattah HM et al.	2024	Effect of touch screen tablet use on fine motor functions in children with hemiparetic cerebral palsy: A randomized controlled trial. NeuroRehabilitation, 55(1), 137-146. DOI: 10.3233/NRE-240134
Karlsson P et al.	2019	Eyes on communication: Trialling eye-gaze control technology in young children with dyskinetic cerebral palsy. Developmental Neurorehabilitation, 22(2), 134-140. DOI: 10.1080/17518423.2018.1519609
Lorah ER et al.	2022	A systematic review of research comparing mobile technology speech-generating devices to other AAC modes with individuals with autism spectrum disorder. Journal of Developmental and Physical Disabilities, 34, 1-21. DOI: 10.1007/s10882-021-09803-y
Seager E et al.	2022	A systematic review of speech, language and communication interventions for children with Down syndrome from 0 to 6 years. International Journal of Language and Communication Disorders, 57(2), 441-463. DOI: 10.1111/1460-6984.12699
Smith AL, Hustad KC	2015	AAC and early intervention for children with cerebral palsy: Parent perceptions and child risk factors. Augmentative and Alternative Communication, 31(4), 336-350. DOI: 10.3109/07434618.2015.1084373
Zhou X et al.	2024	Digital intervention in children with developmental language disorder: Systematic review. JMIR mHealth and uHealth, 13(1), e59992. DOI: 10.2196/59992

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