



## ELIANT Position Paper on Digital Media in Childhood and Education

Education has attained high levels of accessibility and inclusiveness and become remarkably successful in improving global literacy rates. By itself however, this does not guarantee a positive outcome unless it is backed up by an unbiased reflection on the consequences and the freedom to make informed choices.

ELIANT seeks to safeguard the availability of choice in early childhood education and care, in primary and in secondary education. Teachers, caregivers and parents, have the collective right to choose the most appropriate educational settings and teaching methods and to tailor media education to the child's developing needs. For this reason, ELIANT is soliciting the support of EU citizens with its petition about screen-free education that runs until autumn 2020.

The vision of the alliance is guided by the growing volume of scientific evidence coming from neurological, psychological and behavioural research, that points towards the steps required to ensure healthy human development from the earliest age. It is essential that these steps are integrated within any future concept of education so that children can achieve an optimum level of social, emotional, mental and spiritual health.

### Early Digital Education

Early childhood experience is decisive for the subsequent development of each individual. While technological progress is rapidly entering all spheres of life, the use of digital devices in early childhood is particularly concerning. Independent research has shown the effect on children of using digital devices and questions their recommended use for educational purposes<sup>1</sup>. Therefore, it is highly appreciated, that the World Health Organisation (WHO), outlines appropriate screen time according to children's age-specific developmental needs and does not recommend any screen time in the first and second years of life.<sup>2</sup>

### Brain Maturation

Human brain development is at its most intense during the first few years of life. Much in later life, depends on those early experiences. During early childhood, the developing brain requires the body to be active in a variety of natural (analogue) settings and to engage all the human senses. Through physical activity the brain is able to practice its command, control and information processing capacities. The child thus learns to use its brain and navigate the environment by activating its motor functions and sense organs. This physical exploration during the first years of life enables a concept of space and time to develop. Mastery is achieved by repeatedly linking concepts to physical actions<sup>3</sup>.

Similarly, real human interaction is essential if the forebrain (the seat of our control functions) is to reach maturity. The development of the forebrain gives us memory and the capacity to think and act rationally. Its foundation is laid in the first years of life through imitation, exploration and learning by experience.

The sensitivity of the neurons in a young child's brain enables it to accumulate impressions more intensely than an adult. Yet, not all stimuli are beneficial<sup>4 5</sup>. The latest research draws attention to the risk of neuronal over-

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<sup>1</sup> Linn, S., Almon, J., & Levin, D. E. (2012). Facing the screen dilemma: Young children, technology and early education. Campaign for a Commercial Free Childhood. Available at: <http://www.commercialfreechildhood.org/sites/default/files/facingthescreendilemma.pdf>

<sup>2</sup> WHO (2019). To grow up healthy, children need to sit less and play more. News release. 24 April 2019. Geneva. Available at: <https://www.who.int/news-room/detail/24-04-2019-to-grow-up-healthy-children-need-to-sit-less-and-play-more>

<sup>3</sup> Teuchert-Noodt: 20 Theses from the perspective of Brain Research, July 25, 2017. Available at: [https://eliant.eu/fileadmin/user\\_upload/Conference2017/Thesenpapier\\_2017\\_Teuchert-Noodt.pdf](https://eliant.eu/fileadmin/user_upload/Conference2017/Thesenpapier_2017_Teuchert-Noodt.pdf)

<sup>4</sup> Cheung et al., (2017). Daily touchscreen use in infants and toddlers is associated with reduced sleep and delayed sleep onset. Scientific Reports 7, 46104. Available at: <https://www.nature.com/articles/srep46104>

activation, which can have a negative impact on forebrain development<sup>6</sup>. A link has been found between the use of digital technology and the intense reward-seeking sensations that dynamic screen interactions can stimulate. Its excessive use before the brain is fully developed, can upset the balance between self confidence and the need to seek rewards, thereby increasing the risk of becoming physically addicted to the technology<sup>7</sup>.

### **Cognitive Capacities**

Face-to-face communication with other human beings is an essential precondition for developing complex cognitive capacities such as speaking, listening, reading and writing. The use of digital media to boost these competencies has been shown to be largely ineffective and in some cases even associated with delayed speech. In the context of formal education, no positive effects on learning outcomes have been recorded, according to a report on PISA test results<sup>8</sup>. Cognitive capacities depend largely on the healthy development of the brain and the child's socio-emotional intelligence.

### **Socio-emotional Intelligence**

A child's social skills are developed early in life through both verbal and non-verbal communication with its parents, caregivers and teachers. Learning how to recognize and react to emotions is fundamental to the forming of stable relationships with other human beings. Developmental psychology draws attention to the importance of *serve-and-return*, which allows the child to observe and learn from the way parents react to its actions. The term *Technoference*<sup>9</sup> refers to the daily interruptions of face-to-face interaction by technology devices. The focus on screen technologies in our daily lives interferes with personal relationships and often impairs the learning opportunities for young children. Studies also show that the less young children use digital technology, the more are they able to read and understand diverse human emotions<sup>10</sup>.

### **Behaviour**

The latest independent research in the field of behavioural psychology draws attention to the problem of *instant gratification* associated with technology use among young children. Children learn to manage and control emotions by engaging in activities, setting themselves goals and achieving them step by step. Nowadays access to digital entertainment at any given moment, promises instant gratification. This eliminates the need for children to work actively for a reward and impairs their ability to learn patience, determination and self-control. Delayed gratification is something many children no longer encounter and this prevents them developing coping mechanisms. Instead, these technologies foster the expectation that every need or want has

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<sup>5</sup> Hunt, Melissa G., Rachel Marx, Courtney Lipson, and Jordyn Young. "No More FOMO: Limiting Social Media Decreases Loneliness and Depression." *Journal of Social and Clinical Psychology* 37, no. 10 (2018): 751-768. Available at: <https://roguemedialabs.com/wp-content/uploads/2018/11/jscp.2018.37.10.751.pdf>

<sup>6</sup> Hyung Suk Seo et al., (2017). Neurotransmitters in Young People with Internet and Smartphone Addiction: A Comparison with Normal Controls and Changes after Cognitive Behavioral Therapy.

<sup>7</sup> Sigman A: Screen Dependency Disorders: a new challenge for child neurology. JICNA 2017. Available at: [https://www.researchgate.net/profile/Aric\\_Sigman/publication/317045692\\_Screen\\_Dependency\\_Disorders\\_a\\_new\\_challenge\\_for\\_child\\_neurology/links/5922ef56aca27295a8a7b29b/Screen-Dependency-Disorders-a-new-challenge-for-child-neurology.pdf](https://www.researchgate.net/profile/Aric_Sigman/publication/317045692_Screen_Dependency_Disorders_a_new_challenge_for_child_neurology/links/5922ef56aca27295a8a7b29b/Screen-Dependency-Disorders-a-new-challenge-for-child-neurology.pdf)

<sup>8</sup> Coughlan S. (2015). Computers 'do not improve' pupil results, says OECD. BBC News. Education & Family. Sept. 15<sup>th</sup> 2015. Available at: <https://www.bbc.com/news/business-34174796>

<sup>9</sup> Brandon T. McDaniel, Jenny S. Radesky. Technoference: longitudinal associations between parent technology use, parenting stress, and child behavior problems. *Pediatric Research*, 2018; DOI: [10.1038/s41390-018-0052-6](https://doi.org/10.1038/s41390-018-0052-6)

<sup>10</sup> Uhls, Y. T., Michikyan, M., Morris, J., Garcia, D., Small, G. W., Zgourou, E., & Greenfield, P. M. (2014). Five days at outdoor education camp without screens improves preteen skills with nonverbal emotion cues. *Computers in Human Behavior*, 39, 387-392. Available at: <https://www.sciencedirect.com/science/article/pii/S0747563214003227>

to be fulfilled immediately. If it is not, there will be overwhelming feelings of frustration, sadness and anger – causing both children and parents and their healthy relationship, to suffer<sup>11</sup>.

## Conclusion

Real human communication and physical engagement with the surroundings cannot be replaced by digital technology, never mind how sophisticated the current range of apps and devices, may be. For its healthy **development** each child needs an ongoing human focus if its physical, cognitive and socio-emotional capacities are to reach an optimum level of maturity.

The ELIANT Alliance seeks to encourage broad, evidence based, interdisciplinary research into how a healthy developmental process in education, can be created.

This evidence base should then inform education policy and enable parents to choose a form of media education<sup>12</sup> that is age-appropriate and tailored to the developmental needs of their children. This can best be achieved by meeting the following criteria:

1. To further develop an independent, evidence based, interdisciplinary research programme and a longitudinal study into the impact of these technologies on healthy child development and the role that education could play in providing the conditions most conducive to healthy development.
2. To implement an EU-wide awareness campaign that informs parents, schools and teachers about the impact of screen technology on a child's socio-emotional and brain development.
3. To ensure that parents, teachers and caregivers have the freedom to choose between different pedagogical approaches. These need to be accessible, affordable and include the option of a screen-free approach in ECEC and primary education, so long as pupils meet the general learning objectives of compulsory education by the end of their school time.
4. To establish ongoing dialogue with stakeholders – including CSOs, parents and teachers – to design and implement appropriate policies.
5. To develop educational policies and targets that secure the protection of human health and eliminate the potential health risks to each child. Such risk exclusion should be accepted in the general understanding of the precautionary principle, as stated under [Article 191 of the Treaty on the Functioning of the European Union](#).

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<sup>11</sup> W. R. Cummings: The negative effects of technology on childhood behavior. Childhood behavioral concerns. PsychCentral. Available at: <https://blogs.psychcentral.com/childhood-behavioral/2017/11/the-negative-effects-of-technology-on-childhood-behavior/>

<sup>12</sup> Hübner E. (2017): Education for Media Literacy. Media in Waldorf Education. European Council for Steiner Waldorf Education. Available at: <http://ecswe.eu/wp-content/uploads/2019/05/Education-for-Media-Literacy-Media-in-Waldorf-education.pdf>