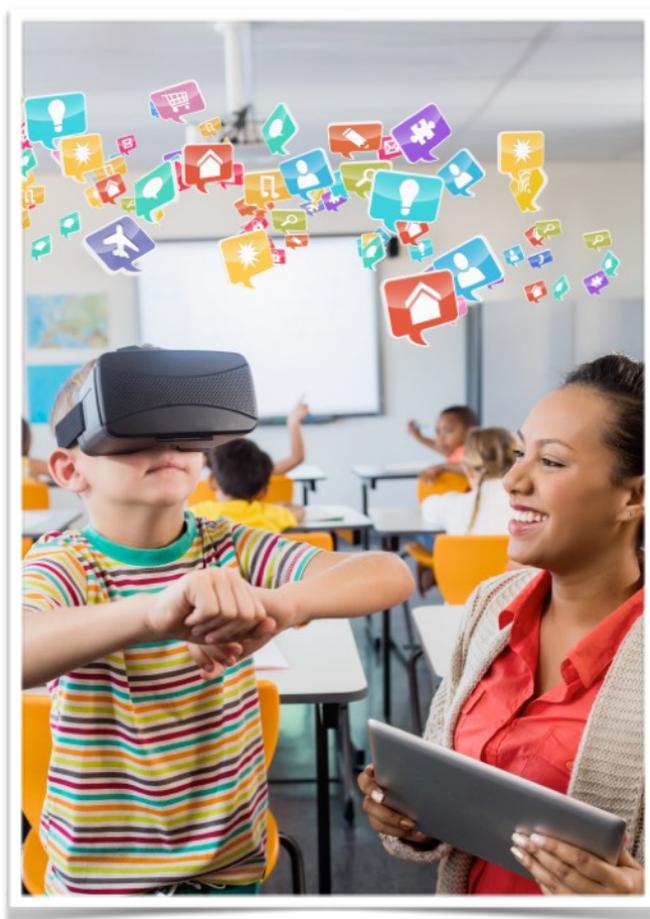# COST Action IS1410

Digital Literacy in the Early Years: Practices in Formal Settings, Teacher Education and Informal Learning Spaces

Policy Brief

DigiLitEY

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EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

This policy brief is based on different actions of Working Group 2 of COST Action IS 1410 "The Digital literacy and multimodal practices of young children", which focuses on young children's practices in early years settings, schools, and informal learning spaces. In particular, it combines findings from an extended review of research published by leading researchers in the field across Europe and elsewhere, as well as an interview inquiry on early years' teachers' perceptions of and practices with digital media and technologies.

Key issues highlighted in this policy brief are:

- In early years educational settings, children are provided with different opportunities to engage with digital technologies in creative, social, and critical practices.

- There is a growing number of digital tools and applications that are utilised for young children's in-school learning; yet, with differential potentials for children's knowledge-building and development.

- Digital literacy practices are more likely to be enacted in educational spaces that concurrently support play-based pedagogies that foster children's curiosity, interest and ability to act on their environment.

- Teachers themselves utilise digital technologies and media both for personal and professional purposes, yet their understandings of digital technologies and their pedagogical potentials vary enormously.

- Teachers' characteristics as well as educative experiences, including initial teacher training and in-service professional learning, play a significant role for their decision to integrate (or not) digital technologies in their teaching.

- Informal learning spaces, including museums and libraries, offer as many opportunities for children's learning and growth with digital media as any formal educational setting.

- The advancement of digital literacy practices in the early years would greatly benefit from the collaboration across social actors, including parents, teachers, librarians, and other professionals.

Research findings

The integration of digital technologies and or media in early childhood educational settings has increasingly received more attention, and this may be seen by the growing number of related studies over the past ten years. This connects to the acknowledgement that children's out-of-school experiences incorporate their engagement with digital media and tools in ways which transgress traditional notions of emergent literacy and early literacy learning as print-based, individual practice. Rather, children are recognised as capable of learning with technology, of making meaning across texts and modes, and of creatively using digital media.

In children's learning with digital media and technologies in formal educational settings, play and inquiry remain central to supportive pedagogical spaces. In fact, it was found that young children learned best when they move across and synthesise modes and media, including popular media texts, pursue their own questions, investigate matters of interest, collaborate with peers as well as adults within and outside their classrooms, discuss, reflect, negotiate, construct and transform meanings and identities. Effective learning practices thus remain those that are connected to problem-solving, exploration, skill acquisition, collaborative learning, social interaction, creation, and the capacity to criticise and critique.

There is an abundance of digital tools and applications that are reported to support children's engagement in digital literacy practices. These include subject-specific applications or educational games that foster children's reading, writing, or mathematics skills, as well as open-ended devices like the tablet or the interactive whiteboard that can be differentially utilised either to open up the learning space of a classroom (e.g., for exploration, communication) or to reinforce more conventional teaching practices (e.g., showing, viewing, filling gaps). This presents teachers with challenges to design and scaffold learning, which include, among others, the identification of the affordances and the potential pedagogical benefits of different digital tools and applications.

Teachers appear to hold particular beliefs about the pedagogical potentials of digital technologies that stem from their own experience as users of digital tools and media, but also are complicated by their perceptions of children, pedagogy, and appropriate practice. Teachers were also unclear in the connections they made between digital technologies and literacy, and this might connect to seeing technology primarily as a tool rather than a part of the broader semiotic and sociocultural terrain.

Teachers' preparation and in-service training are key to the integration of digital tools and the design of effective digital literacy pedagogies in official school settings. There are particular factors that influence teachers in such decision-making and those include (but are not limited to) their beliefs and attitudes, technological competence and perceived ability, knowledge of available technology, content and pedagogical knowledge.

Research regarding teachers' learning suggests that an experiential and participatory learning culture in teacher education and training programs holds the potential of changing and enriching teachers' awareness of digital possibilities. Openness to change might also be key to keeping up with changing technologies and demands of current and future digital culture in pedagogical contexts with children in class as well as with pre-service teachers in universities. Finally, quality support and reliable resources are needed to perceive information and communication technologies as a potential means of connecting to the varied interests of students in ways that encompass multiple tools and modes.
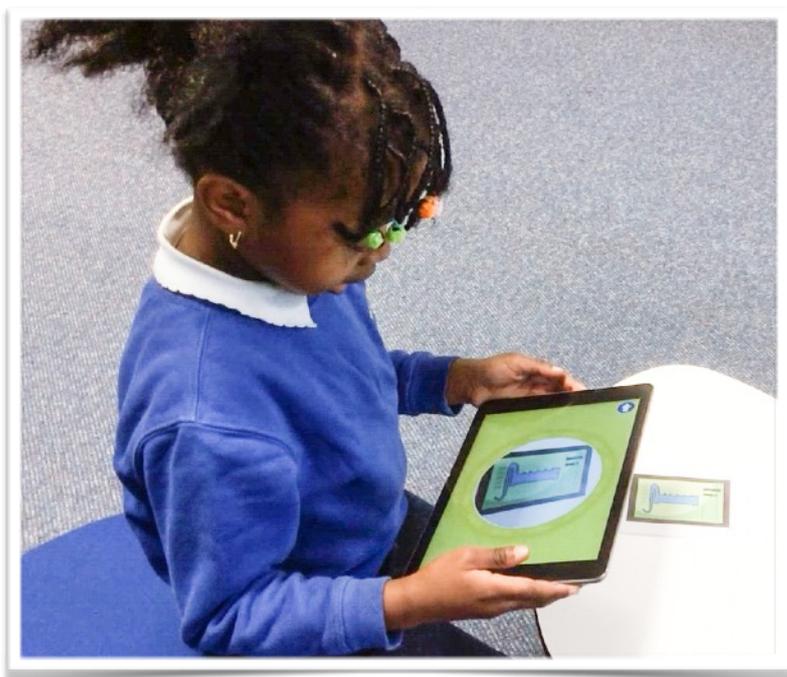
As informal learning venues, libraries and museums are equally important to supporting through their learning programs the community of young children thus adding quality to their early learning experiences. They provide a space for children and families to play, engage with each other and with the community, learn, be creative, trigger curiosity, acquire learning and digital skills. Librarians in particular are suggested to be ideal media mentors because they are experienced curators in the evaluation of different types of electronic resources; designers of early learning programs; and are at a position to maintain close collaborations with community organisations and technology oriented partners to facilitate their projects.

Key messages

... in relation to policy makers

- Early childhood education curricula should be expanded to incorporate changing notions of literacy, including digital literacy, that move beyond the tools and mechanics of language to consider the multiple ways in which children make meaning in context.

- Formal educational settings and informal learning spaces should be seen as places to foster collaboration, communication, social interaction, and generation of texts and ideas. A variety of tools and resources to foster learning in these terms should be ensured by official and other bodies.

- Teacher educators and educational institutions should incorporate in their pre-service and in-service training programs ample opportunities for teachers to first experience the differential benefits of digital tools and devices, and then design teaching that fosters varied understandings of digital technologies in the early years, including coding and other skills, but also research-based knowledge and competencies to link digital technologies and literacy as sociocultural meaning-making practice.

- More support should be provided to interdisciplinary groups of practitioners and professionals to support the integration of technologies in creative and productive ways in practices that move across learning spaces (preschools, kindergartens, libraries, museums).

Key messages

... in relation to teachers and professionals across formal and informal learning spaces

- Teachers and other professionals working with young children should combine evidence-based knowledge and own experience to examine the links between digital technologies and literacy and accordingly design learning based upon sound pedagogical principles rather than be led by the latest technological innovation. Such learning would foster children's curiosity, critical action, and reflection towards digital technologies.

- Openness to new technologies is equally important with an acknowledgement of the value of long-held pedagogical beliefs, including for instance the provision of opportunities to children to experiment, ask, collaborate, play, and move.

- Teachers need to see themselves as among the different professionals who might foster young children's digital literacy learning. For young children, and for older alike, much learning happens in unofficial ways and in informal learning settings. Places like the library and the museum offer opportunities for children's digital, multimodal and multimedia creativity and play, as well as for their critical engagement with and information-seeking through digital tools and applications.