Chaudron, S., Di Gioia, R., Gemo, M. (2018). *Young Children (0-8) and Digital Technology. A qualitative study across Europe.* EUR 29070. Publication Office of the European Union.

In the 21st century, one of the key questions for parents and educators is at what age children should be introduced to and engage with digital technology. To make good decisions, like other practices, for example, medicine (Masic, Miokovic & Muhamedagic, 2008) and public health (Poot et al., 2018), parents and educators need to be informed by scientific evidence and not just respond to market pressure about purchases and practice. Anecdotally, we know that most children in the 'rich' world are, today, from a very early age, gaining a digital footprint, initially by proxy through their parents' digital hardware and software and then through access to their own or shared. While there are data relating to those aged 9 and beyond, little is as yet available for those pre-9 and their interaction with digital technology. To fill what is currently a gap in the analysis of current practice in those early years, in 2018, the Joint Research Centre (JRC) – the European Commission's in-house science service – has produced the results of a qualitative study in a report entitled, "Young Children (0-8) and digital technology a qualitative study across Europe". Although the purpose of the Centre is to provide an evidence-base through science for decision-makers at policy level (Cairney, 2016), the report contains a disclaimer, that is, "The scientific output expressed does not imply a policy position of the European Commission." (Chaudron, Di Gioia & Gemo, 2018: 2)

The report presents (in 260+ pages which include six annexes) the results of a qualitative study involving twenty-one countries (including the Czech Republic, UK and Russia) exploring how children between the ages of zero and eight engage with digital technologies, how far parents mediate this engagement and their awareness on the risks/opportunities balance. It concludes with recommendations to parents, schools, teachers, educators, industries and policymakers. Sixty researchers from 31 research centres and universities participated in the research. The report presents outcomes of the qualitative research which started early June 2014. The research was carried out in two phases, preceded by pilot research (2014-2015):

- Enlargement phase (2015-2016)
- Advanced phase (2016-2017)

During the research, 234 families from diverse cultural and familial backgrounds from 21 European countries were surveyed using a questionnaire method and an interview method.

At the end of the report there are 21 national country reports which were elaborated during the study. These reports which contributed to the data for the main report and for analysis make for fascinating reading, as do the interview quotes selected. The importance of context shines

through and the contrasting opportunities for those born in different countries and in different settings within those countries is further developed.

## The Key Research Questions

In the first round of interviews with parents of children aged 0-8 and with some children of 234 families children which were carried out between autumn 2014 and spring 2017, the researchers sought to gain answers to the following questions: How do children under the age of 8 engage with digital technologies? How do the different family members perceive them? How do parents manage their younger children's use of technologies? What role do they play? What are the associated risks and opportunities? (Chaudron et al., 2018: 13)

In the second round of interviews returning to 56 families in 10 of the 21 countries, a year after the first interviews, the researchers focused on these questions: How did the engagement of children under the age of 8 with online technologies evolve over the course of a year? How did the perceptions of the online technologies by the different family members evolve over the course of a year? How did parents' mediation of young children's use of online technologies evolve over the course of a year? Has the role that the online technologies play in the children's and parents' lives changed over a year? (Chaudron et al., 2018: 13)

The researchers' starting point was the following set of statements of belief.

"Today, young children between 0 and 8 acquire their digital skills mainly in the home context.

Young children learn quickly by observing and mirroring the behaviour of the adults and older children close to their parents and older siblings - following a trial and error strategy not exempt of risks.

Yet young children have a lack of agency and of clear representation of the tools they use daily such as the Internet, Wi-Fi or social networks.

Young children diversify their digital skills and are more aware of risks if their school integrates digital technology meaningfully and develop digital literacy.

Parents tend to support more their children's digital learning opportunities if schools integrate digital technology in their homework requests and tend to have more positive views upon technologies." (Chaudron et al., 2018: 2)

## Findings and Discussion

The capability and competence of very young children in using digital media has been recognised not only by admiring parents and incredulous grandparents but also from research. For example, McClure et al. (2018), O'Connor (2017) and Harrison and MacTavish (2018) report on such phenomena as young children's engagement through video calls, swiping to access new stimuli and accessing desired computer applications respectively. Digital media holds no fears for the young child. They are simply other aspects of the world for them to explore.

Young children like to mimic the language, actions and behaviour of those around them both older children and the adults who care for them; this mimicry is part of the learning process. Seeing older siblings and parents or carers constantly engaged with digital devices suggest such behaviour is acceptable and the way to be. How elders behave influences the behaviour of the young. So, in relation to the use of digital technology we may have to set up controls for on-screen and on-line time.

The tablet has not yet taken over the role of the television as the child-carer and Tanaka and Matsuzoe (2012) report on the post-human development. "Most educational robots for children so far have been designed and developed to play the role of human teachers or caregivers. In other words, they were caregiving robots developed to teach or care for children. In fact, some robots have already been named explicitly as "childcare robots" (NEC, 2005) or marketed as "the service of the teacher's role" (for example, the iRobiQ Yujin Robot)." His own work counters this approach and gives the young person the key role of learning teacher caring for robots. In the Chaudron et al. (2018) report, however, there is surprisingly only one mention of robotics and that as an after-school activity in Latvia. Crompton, Gregory and Burke (2018) report positively on the use of robots in the early childhood classroom in the USA.

As someone who has three grandchildren under the age of eight, I can confirm the competence of young people who from just a few months old are engaged by and engage with digital technology. The readily-available controls on access and history of time on-screen are managed by their parents. In school, access to technology is limited by teachers' knowledge and a lack of facilities. To enhance children's learning, it is necessary to "percolate" the influences that lie in the space between home and school. (Gillen & Kucirkova, 2018)

Serendipitously, while reading my electronic mail, I came across a 2018 blog by Veronika Teplá, "Cesta z (hlavního) města. Programování pro malé děti, a ani nemusíte zapnout počítač", which roughly translated is "the journey away from the capital (or possibly, "Offstream"), programming for young children without having to turn on a computer" which is about one parent's experience with two of her young boys exploring the store of knowledge and fun activities from Linda Liukas's commendable best-seller around understanding the computer, coding and programming (See also from another source a related video – in English – about "Hello Ruby Journey inside the computer", Liukas, 2017).

Active engagement with digital technology within controlled and nurturing environments can - and some (Huber, Highfield & Kaufman, 2018; Hatzigianni et al., 2018; Yelland, 2018) would argue is – enhancing for young children's learning and development in and around play (through which we all learn). By contrast, observations of some antipodean kindergarten teachers suggest that all is not well as a result of a focus on the importance of children becoming digitally competent. (It

should be noted that the majority of parents in the Chaudron et al., 2018, report recognise its value for their children's present and future lives). The Australian Early Years teachers and their development advisers are finding that young children's fine motor skills are less well-developed in the 'touch and swipe' generation. "Children are holding crayons and scissors less and making fewer things with their hands," she said.

"We've noticed that sometimes, even if you pass a pencil or a paintbrush to a child, they're not quite sure how to receive it and how to hold it." (Brown, 2017)

## Conclusions

While the report is relatively small in terms of sample size, it is significant in its contextual breadth. The number and diversity of countries and their cultures focussing on an under-researched area – the digital experience of children aged eight and under, parenting and early years education – do give this work importance.

The report should be read preferably in full (or, at least, the 'executive summary') by all those involved in early years' education and further research into the current and changing position in relation to the digital education of children should be undertaken.

There are some examples of stereotyping and categorising of approaches (for example, of parental attitudes towards digital technology and socio-economic status, and north-south, east-west differences. These are not justifiable claims with such small samples. Such extrapolation and theory positing demean what is otherwise an important starting point for further research. While interesting, the cross-national data analysis did not sit well with the qualitative study and was, for this otherwise supportive reader, unconvincing.

There are some interesting 'observations' with regard to gender differences in relation to both children and parents but it is unfortunate in a 21st century European document that the only photograph of children is of two (white) boys sitting on the floor apparently looking at a tablet.

It was found unequivocally that parents would like both guidance and support from early years' experts and to work with schools to both enable to acquire competence in the digital world and to protect their children from some of the risks of abuse and potential injury.

The nature of change in technology will continue and new challenges emerge. When managed as part of a balanced and continuing education, all children benefit from engagement with the unique benefits of digitally-enhanced learning. Parents, carers, kindergarten and other early years educators do need to maintain their own digital education and awareness of the strengths which enhance young children's learning and the dangers which arise from abuse of digital technology.

## Recommendations

Each state will respond to this report in its own way. In a state like the Czech Republic where freedom is highly valued and where the state hesitates to 'interfere' in

the lives of parents and teachers in schools, what should be the response to this report?

Simple answers would seem to be the best way forward. All solutions should bear in mind the whole needs of the development of the young child: physical, intellectual, social and emotional. Parents and educators of early years children (and their educators, be they teachers, headteachers or university teachers) need to engage in continuing learning about the developments in digital technology and how these can best benefit the development of young children. Here, there is a role for both the state and the regions using the services of the universities and professional organisations to establish learning hubs in schools and libraries.

Where communities, schools, other professional support agencies and parents can work together, it is more likely that the young children in such situations will benefit and be provided with a 'curriculum' which enables them to explore the world in multimodal ways, using and developing all their senses.

Guidelines on the safe use of the internet and how to manage risks and enhance opportunities for learning for all in an unequal world. Information leaflets accessible on paper and online should outline the strengths, benefits and risks related to use and excessive use of digital technology.

The recommendations for parents and policy-makers found in the report are justifiable and should therefore be adopted.

As for the JRC's report recommendations to the digital industry there are just three:

1. build-in "design of devices" which "should empower and protect children;
2. support initiatives aimed at promoting digital literacy;
3. systematic use of a clear and unified age rating system for any digital content across platforms including social ones. (Chaudron et al., 2018: 20-21)

This is a long but significant report of which most readers will focus on approximately one-third, that is, the introduction and executive report, the main body of the report which deals with: trends of young children's engagement across Europe, what changes in young children's engagement over a year, parental perceptions and parenting strategies: tendencies at cross-national level, the conclusions, and the individual reader's own country report. Researchers will find of interest the potential for comparative analysis and questionnaire and sample details among the many annexes. Along with other evidence-based research material which has emerged on this issue - some of which is referred to in this review. The report should be compulsory reading for all preparing to become Early Years educators and those preparing such teachers. In-service and continuing professional development of EY educators are yet other opportunities to share this report. There is equal importance for students and university teachers of Social Work, one aspect of which is parenting and the care of young children. The report also valuable matter for professional discourse at pre-service and in-service levels and with parents. The interview materials alone provide a great resource for initiating discussion.

Finally, the makers of digital technology are interested in innovation and profit-making. If they see that by complying with recommendations in this report they will increase the number of purchases for their hard and software then, I am sure, they will probably be happy to oblige. In a competitive market, where branding and customer allegiance are successfully aligned, profit accrues. Steve Jobs knew this. He also knew the value of children being off-line. In 2010, Nick Bilton of The New York Times interviewed him and asked, "So your kids probably have to love the iPad, right?"

"They did not use it at all," Jobs said sharply. "At home, we limit how much our children use technology." (Bilton, 2014)

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## Davis, Niki (2017). *Digital Technologies and Change in Education: The Arena framework.* New York: Routledge.

In this book, Niki Davis, now Distinguished Professor of E-learning at the University of Canterbury, New Zealand, generously tells her story about what she has learnt about teacher education in Education Technology (*edtech*) since the 1980s and from whom she has learnt throughout her career in the UK, Australia and New Zealand.

What she presents in this book about her own journey are the milestones that influenced the development of her theoretical framework, the Arena. She documents how she developed the Arenas for different contexts, including professional organisations, schools and universities.

This Arena tool is intended for all professionals to explore and analyse the experience of teaching, leadership and research. In this context, Davis tells the story of her learning journey through case studies and research evidence in which she has been involved. The framework can be immensely valuable in understanding the local, regional, national and global forces that impact on *edtech* professional development projects.

She refers to the early 1990s when she worked in the UK with Professor Bridget Somekh on 'action research'. The book they published in 1997, *Using Information Technology effectively in Teaching and Learning,* was a game changer. Although 'action research', has now become 'practice-based research' this method of professional development is used widely in