



How digital technology can support early language and literacy outcomes in early years settings: A review of the literature

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Words for life

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Summary

There is an emerging body of largely small-scale work that shows that technology can have a positive impact on early literacy outcomes. For example, Nuemann and Neumann (2014)¹ found that the use of tablets can support increased alphabetical knowledge, awareness of print concepts and emergent writing in pre-school children. Forthcoming research from the Massachusetts Institute of Technology² has shown that the reading preparedness of children living in disadvantaged communities is improved when children have access to literacy-based applications. However, very little is known about whether technology impacts on neurological development. Arguments about the negative impact of technology have typically centred around screen time – for example, until recently, the American Academy of Paediatrics has advised parents to limit the amount of screen time for under-threes. Due to advances in devices and new evidence the American Academy of Paediatrics (2015)³ are now reviewing their advice.

Some researchers are now saying that parents have disregarded the arguments around the negative impact of technology. The 2015 'Technology and Play' research by Marsh et al⁴. explored tablet ownership across eight categories. This showed that 25% of 0-2 year-olds and 36% of 3 to 5 year-olds in the study owned an iPad. OFCOM's statistics from 2015⁵ also support this, showing that over 40% of children aged 5 to 15 years now have their own tablet, with over half (53%) of 3 to 4 year-olds using a tablet at home. Research from Childwise (2015)⁶ shows that the number of under-fives using tablets and computers has increased by 170% between 2012 and 2015, rising from 23% in 2012 to 73% in 2015.

Technology can play an important role in supporting early communication, language and literacy by offering new opportunities, such as interactive and intuitive story telling e-books and apps, as well as other services, such as online video calling. However, researchers, early years workers and specialists all agree that it should not be used as a replacement to adult interaction. Rather, it should be used as another tool for teaching, like a book. In addition, we know that, if used correctly, technology can play an important route in to reading for certain groups of children, such as those from disadvantaged backgrounds and boys (Formby, 2014)⁷.

It is important to acknowledge the fears that parents and practitioners may have in relation to technology. Headlines can be misleading and exaggerated, and there is very little guidance to support them. The Helping Early Language and Literacy Outcomes (HELLO) tool has been co-designed by the National Literacy Trust and seven early years expert partners, with grant funding from the Department for Education, to improve early communication, language and literacy. This project aims to understand if and how the sector can use digital technology to do this. This research review aims to guide us in understanding what resources and support were needed, based on three areas of our HELLO project:

¹ Nuemann, M.M & Nuemann, D.L (2014) *Touch screen tablets and emergent literacy*. Early Childhood Education Journal 42:4 231-39

² Massachusetts Institute of Technology (2016). "Providing children with tablets loaded with literacy apps yields positive results: Project to provide children with tablets loaded with literacy apps reports positive results in Africa, US." Accessed via: ScienceDaily, 26 April 2016.

www.sciencedaily.com/releases/2016/04/160426130117.htm

³ Shifrin, D et al (2015) *Growing Up Digital: Media Research Symposium*. American Academy of Pediatrics.

⁴ Marsh, J., Plowman et al. (2015) *Exploring Play and Creativity in Pre-Schoolers' Use of Apps: Final Project Report*. Accessed at: www.techandplay.org

⁵ OFCOM (2015) *Children and Parents: Media use and attitudes report*.

⁶ Childwise (2015) *The monitor preschool report: Key behavior patterns among 0-4 year olds*. Childwise, Norwich

⁷ Formby, S (2014) *Children's early literacy practices at home and in early years settings: Second annual survey of parents and practitioners*. National Literacy Trust, Pearson.

- i) Skilled Practitioners
- ii) Partnership with parents
- iii) Enabling environments

Following on from this research review we developed complimentary resources; these can be found on the National Literacy Trust [website](#):

- An online quality literacy app guide & support with choosing apps (literacyapps.org)
- Parent facing 'How to' videos for using tablets to support early communication, language and literacy
- Pedagogical video case studies to demonstrate best practice for using technology in Early Years provision
- A digital observation framework
- Planning sheets to support the practitioners in embedding technology in provision
- Home link sheets to support practitioners' work with parents to understand parental use of technology & preferences in the setting.
- Activity sheets which give ideas for using technology to support early communication, language and literacy.

We hope that the new HELLO resources can be used to support those working in the early years sector as well as parents who are considering, or already using, technology to support early communication language and literacy.

Background

The National Literacy Trust has a longstanding investment in supporting early years children and families to acquire literacy skills needed for learning and life. We know that a strong foundation in a communication and language rich environment is the prerequisite for later literacy skills, such as reading and writing. By the age of five, a child's vocabulary will affect their educational success and income at the age of 30 (Duckworth & Feinstein, 2006)⁸. We develop programmes and research that support us to best reach children and families who are most in need of support.

Responding to a gap in knowledge about the role of technology in the early years, we set up an annual piece of research in 2013, funded by Pearson. This research programme explores the reading practices of 3 to 5 year-olds, including their access to books and technology, at home and in early years settings (Formby, 2014⁹, Knowland & Formby, forthcoming). Over the past three years this research has shown that technology is a route into reading for all children, but particularly benefits those from disadvantaged backgrounds and boys. We also found that families from lower socio-economic households are more likely to use technology with their children for educational activities than for entertainment. Families were also more likely to report looking at, or reading, stories for longer on a touch screen device (such as a tablet) than on paper.

Not only is technology used in homes to engage children with reading, but our surveys have also shown that six in ten (59.7%) practitioners said that they would like to increase the use of touch screens in their setting, with higher qualified staff more likely to support the use of touch screen technology. However, 1 in 4 (23.7%) of practitioners told us that they do not feel that technology has a place in the early years, showing that there are mixed views on the use of technology, highlighting the need for further informed advice and support for the sector.

⁸Feinstein, L & Duckworth, K (2006) *Development in the Early Years: Its importance for school performance and adult outcomes*.

⁹ Formby, S (2014) *Children's early literacy practices at home and in early years settings: Second annual survey of parents and practitioners*. National Literacy Trust, Pearson.

In 2015 we received grant funding from the Department for Education (DfE) to develop the HELLO (Helping Early Language and Literacy Outcomes) project - an improvement tool for practitioners to identify and promote outstanding practice around early communication, language and literacy (CLL) in early years settings. This project aims to build on insights from our 2014 early years research in order to explore how technology is, and can be, used by the sector. Running from March 2015 until March 2016, it is based around three key areas:

- i) Skilled practitioners: the quality of practice of early years practitioners in relation to babies and young children's communication, language and literacy.
- ii) Partnership with parents: sharing information with parents about ways they can support their child's communication, language and literacy development
- iii) Enabling Environments: the capacity of the environment in early years settings to promote babies' and young children's communication, language and literacy

This literature review explores how digital technology can support practitioners in each of these areas, answering the following questions:

- 1. How can digital technology support early years practitioners to improve their practice in promoting babies and young children's communication, language and literacy?**
- 2. How can digital technology be embedded into the early years environment to promote babies and young children's communication language and literacy?**
- 3. How can digital technology support the sharing of information with parents about ways they can support their child's communication, language and literacy development?**
- 4. How can practitioners support parents to use digital technology to encourage their child's communication language and literacy?**

This review aims to summarise the research and feedback from early years experts and key academics in the field to date and give clear next steps that the National Literacy Trust will pursue to fill this gap.

Definitions

Throughout this review we extend the term *literacy to communication, language and literacy* (CLL), which illustrates the essential role that strong communication and language skills have on later literacy acquisition. The definition of Communication and Language is used in the Early Years Foundation Stage (EYFS) framework as one of the prime areas of learning and is defined as; Listening and Attention and Understanding and Speaking. Literacy is then defined as a specific area of learning below this, and further broken down into Reading and Writing.

This paper focuses on technology, with a particular emphasis on touchscreens. This is due to the phenomenal rise of touchscreen use in the home and the intuitive nature of touchscreen devices, which lend themselves to use with the youngest of children. However, we acknowledge that there is a broad stream of other technology used in settings and the home learning environment, such as laptops, desktop computers, television, digital cameras, programmable toys etc. However, these will not be covered in this research review.

The Research Evidence

How can digital technology support early years practitioners to improve their practice in promoting babies' and young children's communication, language and literacy?

More than ever before, children have access to a wide range of digital technologies, both at home and in the learning environment. In particular, the use of tablet and touch screen devices is rapidly increasing in homes. Technology And Play (Marsh et al., 2015¹⁰) research from the University of Sheffield and Cbeebies shows that 25% of 0 to 2 year-olds and 36% of 3 to 5 year-olds own an iPad. OFCOM's statistics from 2015¹¹ also support this, showing that over 40% of children aged 5 to 15 years now have their own tablet, with over half (53%) 3 to 4 year-olds using a tablet at home. 91.4% of parents in our early years research said that their children had access to a touchscreen at home.

The National Literacy Trust's 2016 early years research¹² shows that touchscreens are much more prevalent in homes than in early years settings and that parents report a higher degree of confidence in using digital technology to read with their children than that of practitioners, who usually report lower confidence in their own skills and that of the children they care for. This is reflected in the availability of tablets in early years settings, with 58.2% saying that children they cared for had access to a touchscreen.

In 2014, 49.9% of practitioners told us they faced barriers to the use of touchscreens in their settings due to a lack of availability of funding for equipment¹³, which has been supported by anecdotal feedback received throughout work on the HELLO project. This feedback has also raised the issue of other infrastructural barriers to technology use in settings, such as a lack of technical support, poor WIFI connections and practical issues, such as battery charge and downloading necessary or useful software.

While we acknowledge that these pose issues to wider technological take-up in the early years sector, this review will not be covering possible solutions or suggestions to address these. Instead this work will assume usage for those settings who are not facing these difficulties, or who are, but wish to address these themselves.

It can therefore be said that the internet and digital devices are now part of everyday life; children as young as five will shortly be receiving mandatory lessons on computer coding and it is arguable that the influence of digital technology on children is now inevitable. With this has come understandable concern about the impact this presence can have on developing minds, especially in relation to negative impacts on physical and social behaviours as well as cognitive development. Research from Kucirkova and Littleton (2016)¹⁴ showed that most parents (92%) have concerns over children using interactive e-books, with particular areas of concern listed as an increase in screen time and a loss of interest in print books.

The concerns highlighted by Kucirkova and Littleton, along with other common rhetoric, centre on the premise that use of technology is detracting from children's physical play, or hindering children from socialising with adults or peers. However, these aren't new, as the same concerns

¹⁰ Marsh, J., Plowman et al. (2015) *Exploring Play and Creativity in Pre-Schoolers' Use of Apps: Final Project Report*. Accessed at: www.techandplay.org

¹¹ OFCOM (2015) *Children and Parents: Media use and attitudes report*.

¹² Knowland, V & Formby, S (forthcoming 2016) *Early Literacy Practices at Home in 2015: Third Annual Survey of Parents*. National Literacy Trust, Pearson

¹³ Formby, S (2014) *Children's early literacy practices at home and in early years settings: Second annual survey of parents and practitioners*. National Literacy Trust, Pearson.

¹⁴ Kucirkova, K & Littleton, K (2016) *The digital reading habits of children: A national survey of parents' perceptions and practices in relation to children's reading for pleasure with print and digital books*. The Open University, BookTrust.

had been expressed with the rise in television viewing during the 1960s and even with regard to printed media when it was first introduced¹⁵.

Stephen and Plowman (2014)¹⁶ highlight studies that counteract arguments that claim technology replaces traditional 'physical' play and movement and stops children from interacting and speaking with others. They point to Plowman's et al. 2012 work¹⁷ in Scottish homes, where they observed both parents and children (aged 3 to 5 years) preferring a mixture of traditional and digital play. Plowman also found that the use of technology was best received by children when there was strong guided interaction from adults, thus facilitating conversations and social behaviours.

Much of the rhetoric and guidance around children's use of digital media is based on length of screen time. However, developmental science has been slow to investigate the relationship between tablet use and cognitive development (Bedford, 2015)¹⁸. The most definitive body of research that is widely accepted in relation to screen time is the impact it can have on sleep, with the blue light of light emitting devices, such as touchscreens, inhibiting sleep-wake hormones from being released (Hale & Guan, 2014)¹⁹. Previous guidance from the American Academy of Paediatrics, discouraged parents from letting their children use screens with under twos and encouraged the limitation of screen time to two hours for older children. This guidance is now being reviewed (to be published in autumn 2016) due to advances in devices and an extension of evidence. This signifies a shift away from assessing length of screen time and towards quality of interactions and play when using technology.

One research study looked at the attentiveness, impulsivity, learning and emotional effects of touch screen environments on children aged four to seven. This showed that the introduction of digital devices has resulted in no difference in the concentration spans and problem-solving capabilities of children compared to the use of traditional toys, such as drawing or playing with building blocks (Kilman, 2015)²⁰. When Flewitt et al. (2014)²¹ introduced iPads into three different types of classroom (a children's centre, a primary school reception class and a special school) they found that they had a positive impact on literacy development, providing language rich opportunities for children and teachers and encouraging shared working. This research found that digital technology can link to key areas of literacy learning, namely storytelling and personalisation, which are fundamental in supporting children to build self-identity and an ability to express themselves in their wider social context, during a time when emergent literacy skills,

¹⁵ Childhood in the digital age online course: <https://www.futurelearn.com/courses/childhood-in-the-digital-age-2/details>

¹⁶ Stephen C. & Plowman L. (2014) *Digital play*. In: Sage Handbook of Play and Learning in early Childhood, eds. L Brookers, M Blaise and S. Edwards, pp.330-341. London: Sagebedford

¹⁷ Plowman, L., Stevenson, O., Stephen, C. and McPake, J. (2012) 'Preschool Children's Learning with Technology at Home', *Computers and Education*, 59, 1: 30–7.

¹⁸ Bedford, R (2015) *Should you let your toddler use an iPad? Investigating the impact of touchscreens on infants' cognitive development*. If Babies Could Talk via: <https://www.psychologytoday.com/blog/if-babies-could-talk/201507/should-you-let-your-toddler-use-ipad>

¹⁹ Hale, L & Guan, S (2014) *Screen time and sleep among school aged children and adolescents: A systematic email review*. *Sleep Medicine Reviews*, Volume 21, 50-58

²⁰ Kilman, F (2013) *Child's Play*. *Venture Magazine*, issue #19 accessed on 10.12.15 at: <http://www.swinburne.edu.au/magazine/18/319/child---s-play/>

²¹ Flewitt, R, Messer, D & Kucirkova, N (2014) *New Directions for Early Literacy in the Digital Age: the iPad*. *Journal of Early Childhood Literacy*

such as speaking, are developing. Nuemann's 2014²² study with Australian pre-schoolers found that children with greater access to touch screen tablets were found to have higher letter sound and name writing skills. Her later 2016 study²³ has also shown a positive correlation between children's access to apps and print knowledge, with a positive association across the frequency of writing on tablets and print awareness and knowledge, as well as sound knowledge.

The Massachusetts Institute of Technology, along with both Tufts and Georgia State Universities have been conducting a (forthcoming) study²⁴ to assess the impact of literacy applications on the reading preparedness of young children (aged four to eleven) living in disadvantaged communities across Africa and the United States. This research found that in each of the three communities they were investigating, children showed improved results in test scores, indicating that the use of literacy apps supported early reading skills, including letter and word recognition skills.

It is important to note that the quality of the content of apps can play an influential role on learning outcomes for children. One study from Kucirkova et al. (2014)²⁵ looked at the different levels of engagement of 4-5 year olds using different educational apps. This study found that there was a higher quality of peer (child to child) talk with apps that were open ended and allowed children to work and problem solve together. Later research from Kucirkova, Littleton & Cremin (2015)²⁶ has highlighted six key engagement criteria that signify what a good quality app should look like, in relation to supporting children's reading for pleasure. We have worked to include this research in to our online app guide, www.literacyapps.org, aimed to support parents and practitioners to choose high quality apps for children.

Donohue (2015)²⁷ also observes that children go through the same stages of learning when using digital technology as with 'normal' play, which includes observation, exploration and then creation, drawing on the world around them. Play is the essential learning tool in the early years. What may appear to be 'messaging around' is actually a series of complex learning practices that children are engaging in. If children are using technology to play in the same way that we define 'traditional' play then this would imply that technology can be used as a learning tool.

Flewitt et al. (2014) rightly state that technology alone does not make a difference to children's learning, but instead there needs careful planning from early years teachers to deliver supportive activities that will meet intentional learning goals or outcomes. Plowman (2016)²⁸ advises that play and use of technology should not be seen as separate topics, with good

²² Nuemann, M.M (2014) *An examination of touch screen tablets and emergent literacy in Australian preschool children*. Australian Journal of Education, 58:2 109-122

²³ Nuemann, M, M (2016) *Young children's use of touch screen tablets for writing and reading at home: Relationships with emergent literacy*. Computers and education 97: 61-68

²⁴ Massachusetts Institute of Technology (2016). "Providing children with tablets loaded with literacy apps yields positive results: Project to provide children with tablets loaded with literacy apps reports positive results in Africa, US." Accessed via: ScienceDaily, 26 April 2016.

www.sciencedaily.com/releases/2016/04/160426130117.htm

²⁵ Kucirkova, N, Messer, D, Sheehy, K & Fernandez, P (2014) *Children's engagement with educational iPad apps: Insights from a Spanish classroom*. Computers and Education 71: 175-184

²⁶ Kucirkova, N, Littleton, K & Cremin, T (2015) *Young children's reading for pleasure with digital books; Six key facets of engagement*. The Open University. BookTrust. Cambridge Journal of Education

²⁷ Donohue, C (2015) *Technology & Digital media in the early years: Tools for teaching and learning*, Routledge & NAEYC

²⁸ Plowman, L (2016) *Learning technology at home and preschool*. In Rushby, N & Surrey, D ed. *Wiley handbook of learning technology*. Wiley

practice pedagogy moving away from, “teacherly guidance” and towards open-ended exploratory play. Guernsey and Levine (2015)²⁹ advise that the ‘four C’s’ need to be taken in to consideration when incorporating digital technology into early learning; the individual Child; the Content of the technology; the Context in which it is delivered, both in terms of where the child is using technology as well as how it relates to their ‘real’ life; and the Community pushing leaders for better conditions for early learning and literacy.

There is a need for practitioners to apply their own professional judgement when using digital technology to promote communication language and literacy with children. They need to consider each child’s learning style, developmental needs and preferences in a similar way that they would plan for that child in any other activity.

Implications for the HELLO programme

Through consultation with some of the academics referenced in this paper we also understand that there is a need to support the sector in having the skills and confidence to begin to apply their professional expertise to the use of technology. Therefore, we are exploring the potential to develop an online training course to promote some of the key findings of this research review. Alongside this there is a need to further embed the use of technology to the early years curriculum, which we have tried to address in the development of our planning and observation tools, as well as our activity sheets.

We also would like to explore how technology can be embedded in early play and pedagogy, including linking the use of technology with what we currently know about how children develop communication, language and literacy skills. Our [video case studies](#) from Harrington Day Nursery, one of our HELLO partners, demonstrates good practice around how the teaching school has begun to do this in practice. We have also created [tools](#) that practitioners can use to support them in delivering this good practice, including planning and observation tools, as well as support with choosing and using high quality software, available at literacyapps.org. Underpinning this we were acutely aware that practitioners themselves need opportunities to learn and practice new forms of pedagogy with digital technology.

How can digital technology be embedded into the early years environment to promote babies and young children’s communication, language and literacy?

We do not wish to promote or advocate the use of technology above traditional methods of teaching, but instead wish to support settings, and through them parents, who are already using technology to embed it effectively within their pedagogy, based on the available research and what we know about how children acquire language and literacy skills.

There is already strong research which supports the positive impact that digital technology has when supporting children with Special Educational Needs and Disabilities. This research review does not aim to focus on the impact of digital technology on any one group of children, but the impact that digital technology can have on early communication, language and literacy more generally.

However, it is an important time to think about how the early years sector can adapt their environment to support children’s later learning and the ever-changing digital world around

²⁹ Guernsey, L & Levine, M (2015) *Tap, Click, Read: Growing readers in a world of screens*. Jossey-Bass, New America & the Joan Ganz Cooney Centre.

them. As previously mentioned, digital technologies can provide many opportunities for language rich interactions, so how do practitioners decide what technologies are appropriate for their early years setting? Considerations need to be made about developmental appropriateness, undertaking the right checks, looking at what children use at home, as well as taking careful consideration to the software being used.

Kucirkova (2014)³⁰ argues that tablets are user-friendly and are designed to offer few technical challenges for young children who are quickly enthusiastic and competent users. Touchscreens offer an intuitive interface that enable toddlers to gain intense contingent sensory stimulation, such as swiping and tapping, during a peak period of neural development. The variety, frequency and complexity of the contingent responses the child can get from touchscreen devices offers different benefits from traditional toys and may generate heightened levels of cognitive activity. Equally, it may offer negative impacts on cognitive development, however this has not been scientifically explored enough to be determined.

Tablets also fit easily in to the learning environment and encourage an ‘anywhere, anytime’ attitude to learning; alongside this, they offer further opportunities for personalised learning (Choing & Schuler, 2010)³¹. However, digital technology should be used as supplementary tools to complement other high quality learning resources and experiences. For example, teachers can use technology to support children’s interests, such as finding YouTube videos or specific apps on a certain topic. This can then be used as an opportunity to extend that child’s play further, such as through role play activities which offer enriched language and communication opportunities.

Flewitt et al. (2014)³² argue that children who have access to technology at home display more strategic use of digital technology for literacy purposes than those who do not. It is worthwhile for early years settings who already use technology to consider how they can begin to support access to technology for those families who wish to access it but cannot afford to, in a similar way that lending libraries are provided for book sharing.

It is also important for practitioners to plan for and consider the environment in which children use digital technology – is there support to hand when working with technology? Is the environment quiet enough for children to concentrate on tasks? How often do children get to explore and repeat technological play? How do children use digital technology at home and how can their time at the setting enhance or complement this?

Educators need to be aware of how the use of mobile devices should differ across formal and informal settings and that technologies can be used as supplementary materials both inside and outside of the classroom. Further exploration and work is needed to understand how to adapt early years environments to meet the needs of children and families, for example, can settings adapt their own use and support that of families? What is needed to allow this to happen? Can libraries play a role in doing this, for example by making technology accessible to all who want to use it?

³⁰ Kucirkova, N (2014) *iPads in early education: separating assumptions & evidence*. Frontiers in Psychology.

³¹ Choing, C & Schuler, C (2010) *Learning, is there an app for that? Investigations on young children’s usage and learning with mobile devices and apps*. The Joan Ganz Cooney Centre at Sesame Workshop.

³² Flewitt, R, Messer, D & Kucirkova, N (2014) *New Directions for Early Literacy in the Digital Age: the iPad*. Journal of Early Childhood Literacy

How can digital technology support the sharing of information with parents about ways they can support their child's communication, language and literacy development?

In some settings, digital technology is used to share good practice, literacy methods or resources. For example, social media and email are used to share modelling with storytelling or sharing nursery rhymes. One such example of this practice in action comes from the HELLO setting, Little Angels (in Derby), who uploaded parent information videos to their Facebook page, including showing parents how they can make and play with Disco Dough to support early writing skills.

Donoghue (2015)³³ also cites examples of how digital technology can be used as a method to communicate children's progress with parents and carers, for example via the use of websites such as www.Kaymbu.com or online learning journal software such as Tapestry. These packages allow practitioners to upload videos or pictures and observations to individual children's profiles, which are then sent directly to parents via email or through a secure login.

These packages can begin to support two-way conversations across parents and settings to facilitate planning around individual children's interests, while also minimising the workload of practitioners. However, some early years leaders have expressed concerns that such technology can take away the peer support and conversation that takes place between staff members. This is due to the automatic classification of observations to early learning areas via the software, which may detract from staff engaging in conversation with their peers about next steps for development.

There is very little research that explores parental attitudes towards the use of such software. This is due to its relatively new introduction and uptake within settings. However, anecdotal evidence throughout work on the HELLO project has shown a positive response from parents, who have said they prefer such tools as they are able to see their child play and see their learning in action. Staff have also said such tools support bilingual families, who are able to see what their children are doing, even though there may be a language barrier with staff.

Examples, such as seeing pictures and videos, can also support communication between parents and children. Children are able to show their parents what they have been doing in the setting, providing a language rich experience that would normally have been led by adults.

How can practitioners support parents to use digital technology to encourage their child's communication, language and literacy?

Edwards (2013)³⁴ states that families have disregarded the arguments relating to the cognitive and educational impact of digital technologies, which she refers to as, 'the technology question'. By this she means the arguments around the role of technology in early years education, which centre around whether or not technology should have a place within it. She argues that these arguments are obsolete as technologies now serve embedded cultural and social purposes, such as communicating with other family members or friends and documenting key activities.

³³ Donoghue, C (2015) *Technology & Digital media in the early years: Tools for teaching and learning*, Routledge & NAEYC

³⁴ Edwards, S (2013) *By-passing the debate: beyond the 'technology question' in the early years*. Australian Catholic University. Accessed on 10.12.15 via: <http://tactyc.org.uk/pdfs/Reflection-Edwards.pdf>

She argues that such purposes have meant that technologies are now part of everyday home life, despite the 'technology question' argument in the early years sector.

Plowman (2015)³⁵ states that children model their parent's behaviour around the use of technology. Parents are increasingly using technology in everyday life, meaning children also want to explore it and emulate those behaviours. Kleeman (2015)³⁶ has shown that children typically use technology during travel or during 'down time' – demonstrating that this interaction is not taking away from other 'traditional' activities. However, use of technology at these times may also mean that parents are not scaffolding and supporting technology use with children, as they are typically involved with other tasks, such as driving or cooking etc. Indeed, Kucirkova (2014)³⁷ has stated that the more interactive the app is, the more unlikely it is for parents to sit and work with their children, which may demonstrate the need to reinforce the role of parents as educators with tablets, in the same way they are with books.

Choing and Schuler (2010)³⁸ argue that parents need to understand how to optimise time spent with devices and use the opportunity to work effectively to model behaviours with children. Plowman (2015)³⁹ supports this argument, stating that parents are role models and should think aloud as they use technology, explaining thought processes and involving children in simple tasks, such as online shopping, which provide language rich opportunities. This also embeds the use of technology in to the everyday lives of children, supporting learning in a process that is relevant to what they already experience. Therefore, the best potential for tablet use is when parents and educators are there to guide and support children.

Donahue (2014)⁴⁰ argues that we need to consider building digital literacy skills of parents to encourage language development and early literacy skills of their children. This could be via advisory apps/resources for parents on how to use technology with children or suggestions for conversations etc. or by bringing parents in to the classroom, to show them how to model using technology.

Implications for the HELLO programme

We have developed a [video](#) with parents and families from Peter Pan Teaching School Alliance in Bedford, a lead partner in HELLO, which aims to translate some of these positive messages for parents who are already using, or plan to use, technology with their children, based on the suggestions of Donahue, Choing and Schuler.

Building on the ideas brought forth by software such as Tapestry we want to explore how practitioners can work with parents to understand how technology is used in the home, in order to individualise and build technology use into settings to fit around what children and parents are already familiar with. As our early years research has shown us that parents are more likely to use technology to support educational activities, we believe there is an opportunity for shared

³⁵ Plowman, L (2015) *Exploring play and creativity in preschooler's use of apps*. Technology and Play.

³⁶ Kleeman, D (2015) *Technology and Play; Exploring creativity and play in preschooler's use of apps*. iKids. Accessed on 10.12.15 via: <http://kidscreen.com/2015/07/16/small-fingers-big-insights-mobile-apps-des>

³⁷ Kucirkova, N (2014) *iPads in early education: separating assumptions & evidence*. Frontiers in Psychology.

³⁸ Choing, C & Schuler, C (2010) *Learning, is there an app for that? Investigations on young children's usage and learning with mobile devices and apps*. The Joan Ganz Cooney Centre at Sesame Workshop.

³⁹ Plowman, L (2015) *Exploring play and creativity in preschooler's use of apps*. Technology and Play.

⁴⁰ Donohue, C (2015) *Technology & Digital media in the early years: Tools for teaching and learning*, Routledge & NAEYC

knowledge across early years settings and families. Therefore we have created a [digital home link sheet](#) for practitioners to share with families in order to develop this good practice.

Such methods could also support inclusion issues, raised in our early years research, where we see families from less advantaged backgrounds having unequal access to technology. Settings could consider the possibility and feasibility of adapting their provision to meet the needs of these children and families.

Speaking to the sector

Across this research review we have been consulting with early years leaders from the HELLO project. We wanted to explore with them some of the questions which have been highlighted in this review, namely:

- How can technology begin to be embedded in early years pedagogy, based on what we already know about child development and emergent communication, language and literacy skills? What tools will practitioners need to do this and how can we support them?
- How can practitioners work with parents to link or enhance technology use across the setting and home?
- How can messages which promote positive behaviours when using technology be shared with parents?
- Do early years environments need to be adapted to allow for the use of technology?
- What good practice is already taking place that show how this has been done and what else do we need to know?

We posed these questions both from a theoretical and a practical standpoint, aiming to understand what interventions and solutions could best support the sector. Through these consultations recurrent themes seemed to emerge; for example, many early years leaders asserted the need for practitioners to be upskilled themselves, before they could be confident in using technology, and the need for settings to allow practitioners to use these skills in a flexible manner which allows for the effective embedding of technology, like any other tool or toy.

Practitioners also highlighted the need for support when approaching the app market and once apps or activities were chosen, how to support children in exploring them to most benefit. Therefore we have developed an app guide (literacyapps.org) to support quality choice, based on what we currently know about the way children acquire literacy skills. This has built in current research around quality app content, adapting research from BookTrust⁴¹ and the Open University, as well as the support of Natalia Kucirkova (Manchester Metropolitan University). Within this we have also created parent and practitioner focused [videos](#) that demonstrate positive behaviours and modelling with app use and other tablet based activities as tools to provide communication language and literacy rich opportunities.

Partners across HELLO are also developing training to begin to deliver these messages to practitioners; we want to look at how to pool this expertise and provide something more widely available and consistent across the sector, along with the tools to begin using that knowledge effectively. This includes the [pedagogical support resources](#) we have outlined throughout this report, including observation, home-link and planning templates along with practical activity suggestions.

⁴¹ Kucirkova, N, Littleton, K & Cremin, T (2015) *Young children's reading for pleasure with digital books; Six key facets of engagement*. The Open University. BookTrust. Cambridge Journal of Education

These support mechanisms are intended for those who see the value of, or indeed are already using, technology as a support tool for communication language and literacy. We know that more and more families and settings are making the decision to use technology in their practice and therefore we wish to apply this research to be of best use to this group of people. We also hope that this review provides support to parents and practitioners who are unsure about the use of technology, to provide a balanced overview and allow people to come to their own conclusions.

Next steps

The resources outlined above aim to meet some of the gaps we have identified throughout this review. These have been developed with ongoing consultation with the sector and academics and have been structured around the three areas of the HELLO project in order to support and add to the excellent practice that is already taking place across the sector to support communication language and literacy. We hope they are a useful starting point to support those practitioners and parents who are interested in using digital technology to support communication language and literacy.

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