



**Early Childhood Australia**

A voice for young children

**OUR  
VISION:  
EVERY  
YOUNG  
CHILD IS  
THRIVING  
AND  
LEARNING**

## Discussion Paper

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### Towards an Early Childhood Australia Statement on young children and digital technology

#### About us:

Early Childhood Australia (ECA) is the national peak early childhood advocacy organisation, acting in the interests of young children, their families and those in the early childhood sector. ECA advocates for quality in education and care as well as social justice and equity for children from birth to eight years. We have a federated structure with branches in each state and territory. In 2018, ECA celebrated 80 years of continuous service to the Australian community.

Find our more at: [www.earlychildhoodaustralia.org.au](http://www.earlychildhoodaustralia.org.au)



## **Discussion Paper: Towards an Early Childhood Australia statement on young children and digital technology**

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### **Introduction**

Early Childhood Australia (ECA) is developing a Statement on young children and digital technology.

This discussion paper outlines the breadth of work already undertaken by ECA in this area, and reports on the current views held in the Australian early education sector about young children and digital technology. It also presents expert advice and evidence drawn from Australian and international research into young children using digital technology.

The views, advice and evidence presented in this paper have been gathered by ECA to inform the writing of a Statement on young children and digital technology. The statement will provide guidance for educators and other stakeholders on how young children can use digital technology in ways that support their education, development, health and wellbeing during early childhood and into the future.

ECA welcomes feedback on this discussion paper from all those who work with and care for young children, including educators, parents, families, caregivers and affiliated professionals.

### **Why a statement specifically about digital technology?**

People have always used and created technology. Technology is developed when people apply knowledge about how things in the world work to create new objects that help them in their lives. There are many different types of technology, falling within three broad categories: mechanical technology (e.g. wheels, blocks, levers, gears); analogue technology (e.g. film-based photography, drawing, painting); and digital technology (e.g. mobile phones and computers).

Digital technology was first developed in the 1960s with the advent of microprocessors—small ‘chips’ that convert information into numbers or ‘digits’ (this is why it is called ‘digital’ technology). Converting information into digital form enables people to store and share large amounts of data. Today, digital information can be accessed, created and used by people anywhere, at any time, using a range of devices such as laptops and desktop computers, touchscreen tablets, smartphones, children’s toys, televisions, wearable devices and home entertainment systems.



Digital technology is not just about devices. It also involves how people use, respond to, participate in and engage with the different forms of digital information. We use digital technology extensively as we go about our daily lives; to purchase food and other goods, to organise travel, to access entertainment and music, to manage our personal finances, and to monitor health and fitness.

Digital technology is also used in educational settings and workplaces around the world for a diverse range of tasks including communication, research, sharing information, socialising, playing, and recording images and videos. Digital technology is increasingly present within family life, and many young children are interacting with apps, games and high-tech toys that are designed specifically for the under-five age bracket.

As young children are born into this tech-connected society, early childhood professionals are increasingly responding to questions on the rightful role and optimal use of digital technology in early childhood settings.

## **Why a statement on young children and digital technology?**

Early Childhood Australia advocates for the best interests of young children. Adults who care for, educate and work with young children play an important role in supporting children. Now that young children are growing up with digital technology, it is important that adults can make informed decisions about how and why young children use and access digital technology. The breadth of young children's experience with digital technologies means that early childhood professionals are currently facing a new, relatively uncharted situation in their work with children and families. A statement on young children and digital technology will help adults make decisions that consider the best interests of young children growing up with digital technology.

The early childhood sector is well-versed in using traditional mechanical and analogue technologies to enhance young children's learning. Educators, parents, caregivers and other associated professionals are accustomed to children using paint brushes or pencils to create representations of their worlds, for example. Or adults may encourage children to use blocks or gears and levers to learn about balancing materials or making objects move. Activities that use mechanical or analogue technologies are hands-on, active and a good fit with what many early childhood professionals recognise about the value of play as an active form of learning for children.

However, the sector is still developing knowledge about the role of digital technology in early learning, its role in young children's lives, and what digital activities look like in early learning settings. This is why the development of a statement that focuses specifically on digital technology is both important and timely. It will help early childhood professionals—and the sector as a whole—to build the knowledge base required to ensure that digital technology use in early childhood settings will support and promote the best interests of young children.



It is important to remember that a statement is not the same as guidelines. Guidelines provide recommendations for practice based on rigorous research and evaluation. Statements represent the views of an organisation based on the best available evidence. The ECA Statement on young children and digital technology will provide principle-based advice to help early childhood professionals make decisions about young children and digital technology that are relevant to the needs, expectations and experiences of their communities. This is because not all Australian children, families and early childhood professionals access or use digital technology in the same way or for the same purposes.

The Statement on young children and digital technology will be aligned with existing policy documents, advice and guidelines regarding technology use by young children. Some of these include the *Early Years Learning Framework* (EYLF), the Melbourne Declaration, and national and international public health guidelines on movement.

## **What is the progress towards a Statement on young children and digital technology?**

Over the past 12 months, the ECA Digital Policy Group has consulted widely with members of the early childhood sector on their views about young children and digital technology, via online surveys, social media engagement, and participant feedback from the 2017 Live Wires Forum. We have also undertaken focus groups with young children and conducted a systematic review of the research literature to learn more about how digital technology can be used in the best interests of young children. Finally, the Digital Policy Group collaborated with a group of experts to gain feedback on the development of the Statement on young children and digital technology.

For more detail on the outcomes of the consultation processes and literature review, refer to the attached appendices:

- Appendix 1: Overview of ECA activities to inform the development of a statement
- Appendix 2: Online survey of more than 500 ECA members and others
- Appendix 3: Focus groups with young children
- Appendix 4: Feedback from participants of the 2017 Live Wires forum
- Appendix 5: Video-prompted online engagement via social media
- Appendix 6: Summary of the systematic review of the literature
- Appendix 7: Membership of ECA's Digital Policy Group.



## What has ECA found?

ECA has established seven key findings to inform the development of the Statement on young children and digital technology, based on the sector consultation, engagement with children, review of the literature and feedback from experts as described above. These pivotal findings will provide the basis for the principle-based advice provided for early childhood professionals in the statement.

The seven key findings are as follows:

**1. The sector believes a statement on young children and digital technology is needed to help early childhood professionals make decisions about, and advocate for, digital technology use that is in the best interests of the child.**

There is a clear demand across the sector for a statement on young children and digital technology, with 85 per cent of respondents to the online survey indicating that they felt a statement was timely. Respondents were seeking advice on navigating technology use with young children, particularly with regard to areas such as integrating technology in a play-based curriculum, balancing screen activities with non-digital activities, implementing digital safety with young children, healthy use of technology by young children, and adult modelling of appropriate technology use.

At the 2017 Live Wires Forum, participants suggested that a statement on young children and digital technology would help them in advocating for increased access to professional learning about using digital technology in early childhood settings, and for the provision of digital resources in their classrooms. They also believed that a statement would help inform the development of centre-level policies around safe and ethical digital technology practices with children and families (e.g. digital documentation of children's learning).

**2. There are diverse opinions in the early childhood sector about how and why young children can use digital technology to support positive outcomes.**

Opinions about young children and digital technology differ greatly across the early childhood sector. Seventy-eight per cent of those who participated in the online engagement believed that educators and parents/carers should play an active role in building children's digital technology practices and skills before school. However, 58 per cent of online survey respondents don't think early childhood settings are an appropriate place for children to acquire skills in using digital technologies. Only 37 per cent of respondents, however, stated that they believe acquiring digital technology skills will assist a young child in the future. This indicates a split in sector thinking: some believe that learning about digital technology is important for young children; others believe digital technology is inappropriate within early childhood settings.



As with the online survey findings, a review of the current research presented mixed opinions about young children and digital technology. Educators have concerns about digital technology displacing traditional hands-on play-based learning and are not always aware of how to integrate digital technology into the early childhood curriculum. Parents and caregivers accept digital technology as part of family life, but they hold mixed views about using technology with young children. Parents employ digital technology to entertain children, to share learning and to distract children when required. However, parents/caregivers also report difficulty managing children's screen use and are concerned about the potential negative effects of digital technology, such as increased sedentary behaviours and reduced social interactions.

Research also showed that early childhood educators lack access to professional learning about technology and to technological resources to use with children in early learning settings. It is interesting to note that outside of the early childhood classroom educators report being skilled and frequent users of technology in their personal lives, (e.g. mobile phones for social media.)

**3. Recognising that digital technology is part of many young children's daily lives means that early childhood professionals need to consider how and why digital technology is used in early learning settings.**

Young children see adults using digital technology for many purposes every day: texting, posting to social media, taking photographs, watching videos, playing games, accessing information (e.g. recipes) and navigating car or public transport travel. Adult usage normalises technology for young children, and helps shape their own interest in activities involving digital technology. Like adults, young children use devices for a range of purposes. Research shows young children use digital technology for communication, to watch videos, play games, access information and for digital recording (e.g. taking photographs and videos). ECA survey respondents from within the sector noted that many young children use digital technology every day. One respondent wrote: 'Digital technologies are not something "other". They are "every day" and we need to move away from "othering" them to approaching them as part of our worlds.'

Consultation with young children revealed their knowledge of different types of digital technology, and how and why digital technology was used in their daily lives. For example, children could identify tablets, phones, robots, DVDs, speakers and external hard-drives. Children expressed understanding about the different components of digital technology. When invited to draw pictures of technologies they used, children would include details such as the menu button and apps on touchscreen tablets. Children also described practices for technology use at home, such as not playing with a tablet or phone when eating, seeking parent/caregiver permission to use technology, and only using devices in shared social spaces at home.



The literature review confirmed that daily technology use by young children is common. International research showed that children start using technology from as young as eight months of age and that many children aged two to five years use digital technology every day. Many children in this age group also access the internet daily. Statistics compiled by the 2017 Australian Child Health Poll, which surveyed 3797 Australian children aged between one month and 18 years, suggest that these trends are mirrored in Australia. Results of the poll showed that:

- one-third of Australian preschoolers (birth to age five) had their own touchscreen device
- parents/caregivers reported that infants and toddlers used screen-based devices for 14 hours per week
- Australian children aged 2–5 years used screen-based devices for 26 hours per week.

#### **4. Young children and their families need to build knowledge about how to be safe and active digital citizens when using digital technology in their daily lives.**

Digital citizenship describes how people use networked digital technology in safe and appropriate ways when communicating with others, and when creating and consuming digital content. Digital citizenship was a concern for ECA survey respondents, with the majority suggesting that adults do not yet know how to support young children's rights and safety in online spaces when using digital technology. Survey respondents were concerned by the increased risk of children being exposed to inappropriate content online and possible grooming.

Research into digital citizenship education for young children is limited. For many years it was thought young children did not need digital citizenship education because they could not easily use computers or access the internet with input devices such as a keyboard and mouse. However, with the advent of touchscreen technology, very young children can now access the internet easily, without even realising they are online. The Internet of Things, which embeds microchips in clothing, toys and wearable technology, means data about young children's activities and location may also be recorded and stored by third parties without the child's knowledge or consent.

There are now international calls for digital citizenship education to begin before children start school. An expert who presented to the Digital Policy Group raised the ethical consideration of the extent to which the early childhood sector should be considered responsible for teaching children and their families about safe and appropriate digital technology use.

Research shows that digital citizenship education for young children cannot be adapted from programs already designed for primary and secondary school children. This is for two reasons. Firstly, young children do not understand digital technology and the internet in the same way that older children do. Young children often think the internet is the device they are using. This means they need opportunities to build their understanding of the internet as an interconnected network of users



before they can be taught about online safety. Secondly, early childhood educators understand that children learn best through play and social interactions. Little is currently known about how to make digital citizenship education play-based for young children.

**5. The health and wellbeing of young children using digital technology is important and includes children's physical activity, posture, sleep, emotions and social interactions.**

Findings from the online survey suggest the sector is concerned that the use of digital technology may influence the health and wellbeing of young children. Potential physical health issues that respondents were concerned about include:

- reduced opportunities for physical play leading to increased obesity
- reduced opportunities for gross motor activities
- poor posture
- impacts on vision.

Concerns were also raised about how digital technology use influences young children's sleep, emotional health and social interactions. Sector feedback collated via ECA's social media video engagement raised similar concerns.

Expert advice to the Digital Policy Group directed attention to existing research on the use and associated health and wellbeing outcomes of more established technologies such as television. This provides some guidance in relation to concerns about sedentary behaviour, posture and movement. Current public health guidelines suggest sedentary screen-based digital technology use should be minimised in early childhood. There is also a growing recognition that the quality of digital technology use, for example age-appropriateness of content, is just as important as the amount of time spent using it. However, because touchscreen devices are so mobile and can be used in so many different ways, it is not yet clear if the established impacts of older technology (such as television) will also manifest through the use of digital technology.

The literature review identified very few studies on the health and wellbeing impacts of new touchscreen mobile digital technology use by and with young children (aged birth to eight years). The available evidence does suggest that different devices elicit different physical activity responses for young children, however, these responses are not necessarily worse than traditional mechanical or analogue technology-based activities. The literature review also found evidence that using mobile screen technology just before bedtime disrupted children's sleep. The sleep finding is consistent with research on older technologies such as television.





**6. Knowledge about digital play and pedagogy helps early childhood professionals integrate digital technology into play-based learning and intentional teaching experiences for young children.**

Play-based learning is a hallmark of early childhood education. In the EYLF, play is defined as an opportunity for children to learn through creating, discovering, improvising and imagining. Pedagogy is defined as the way educators build relationships with children for teaching and learning. These two definitions suggest that digital play pedagogy can be understood as the play-based use of digital technology by children with educators. However, what digital play pedagogy looks like in practice is not yet clear to the sector. Only 13 per cent of survey respondents 'Strongly Agreed' or 'Agreed' with the statement: 'Early childhood services are increasingly integrating technologies into play-based learning'. One participant at the 2017 Live Wires Forum articulated the problem thus: 'It is hard to integrate digital technology into traditional play.'

When asked what digital play meant to them, the early childhood professionals who participated in the online engagement demonstrated a breadth of understanding and experience. Responses ranged from 'playing games on iPads or computers' to 'using digital media to transmit sound, visitation, music and film', and 'a convergence of traditional play and digital play'. Respondents identified the following benefits of digital play:

- It enables immediate access to information.
- It is a useful tool to enhance learning.
- It is a way to engage in multi-modal learning.
- It provides an opportunity to build understanding of technologies.
- It offers a way to start conversations with children and families about good digital practices.

A review of the literature suggested that digital play pedagogy is a developing area of investigation. Existing theories of play are being used by researchers to define what and how young children play with digital technology. Research is also examining the increasingly blurred boundary between children's traditional play activities and digital interactions. For example, is a child using a drawing app engaged in a traditional or digital activity? Or should this now be understood as a new form of play? This work is important because it helps the sector integrate digital technology into play-based learning and intentional teaching.

**7. Relationships between children, families and early childhood professionals using digital technology matter.**

Like analogue and mechanical technology, digital technology is created and used by people. When children use digital technology, they do so in relationship with their families, peers and early childhood professionals. Early research conducted in this field indicates that computer use in early childhood settings supports children's social interactions. More recent studies have shown that children use digital mobile technologies in ways that also foster opportunities for social engagement



with other people, for example, using video-chat or sharing in parent/caregiver social media. In classrooms, young children might use digital technology for collaborative learning, which requires active modelling by educators and support from adults in turn-taking.

Educators who participated in the online engagement indicated that they were looking for support to engage with parents on their children's use of digital technology. Some educators, having identified concerns about how parents modelled use of digital technology in front of their children, and the impact this may have on the parent-child relationship, want to provide advice to families on modelling good usage at home. Others would like to engage with parents in conversations about how digital technology can be used in the early learning setting. Many educators expressed concern at the length of time, and the quality, of children's home-based digital technology use, and view the early education setting as an opportunity to either compensate for high home use by restricting use in the centre, or to model positive use.

Feedback from the consultation indicates that the views of educators and parents can become polarised. Fostering strong relationships with families will help early childhood professionals to promote the positive use of digital technology, by providing advice to parents and caregivers on how to engage young children in safe and appropriate digital technology use at home and in their communities.

## **What is ECA intending to include in the statement?**

Based on the consultation process, reading of the research literature and advice from experts, the Digital Policy Group believes the Statement on young children and digital technology should provide principle-based advice for early childhood professionals in four main areas:

- relationships
- health and wellbeing
- digital citizenship
- digital play and pedagogy.

The statement will provide principle-based advice aimed primarily at early childhood educators, but will also be relevant to affiliated professionals such as paediatricians and speech pathologists, and children's families and caregivers.

Feedback received from the sector indicates that a statement providing principle-based advice may not meet all expectations. Many stakeholders indicated that they were keen to receive guidance on the number of hours children should be using digital technology and at what ages. However, digital technology is not used by all children, families and professionals in the same way. Guidelines about screen time might be a useful shortcut for educators and parents, but may not deliver the best



outcomes for children. One hour a day of low-quality, passive video watching, for example, may be less beneficial than two hours of video making, video-chat with family members, coding or learning dance steps online. Recognising that every circumstance and context for children, families and early childhood professionals is different, the statement will therefore provide principle-based advice so that adults can make informed decisions about appropriate technology use for the children and families with whom they work.

Informed by current available research, and acknowledging the wide-ranging viewpoints across the sector, the Statement on young children and digital technology intends to support early childhood professionals and other adults in building their knowledge and understanding of digital technology use that is in the best interests of all children. It presents a unique, essential and timely opportunity for the sector to gain a deeper insight into the lives and educational needs of young children growing up with digital technology.

## What will happen next?

ECA is seeking sector feedback on this Discussion Paper to inform the draft Statement on young children and digital technology. Guiding questions for feedback are:

- a) Do you think the consultation has captured key areas for principle-based advice that would help early childhood professionals make decisions about young children and digital technology in the communities and early learning settings in which they work?
- b) How do you envision the Statement on young children and digital technology being used in your own participation within the early childhood sector?

## How can I provide feedback?

Feedback can be sent to Early Childhood Australia at [policy@earlychildhood.org.au](mailto:policy@earlychildhood.org.au) or you can respond online at: [www.earlychildhoodaustralia.org.au/our-work/submissions-statements/eca-statement-young-children-digital-technology-use/](http://www.earlychildhoodaustralia.org.au/our-work/submissions-statements/eca-statement-young-children-digital-technology-use/)

**Closing date for submissions: 25 April 2018**

## Appendix 1: Overview of ECA Activities to inform development of a statement

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In 2016 Early Childhood Australia (ECA) decided to develop a statement on young children and digital technology. The decision was informed by initial engagement with the sector at various ECA events (e.g. the 2015 Live Wires Forum) and the development of a supporting Concepts Paper. ECA subsequently established a Digital Policy Group to lead the development of the statement on young children and digital technology. The group comprised individuals and organisations with expertise in the fields of young children's education and development, early childhood curriculum, health and wellbeing, digital safety and citizenship, parenting and families, interactive technologies, digital media and online environments (Appendix 7 lists group members).

The Digital Policy Group recommended a series of activities to inform the development of the Statement. The activities served two purposes:

- to establish currently held sector beliefs about young children and digital technology; and
- to identify knowledge about technology use 'by and with' young children according to the research literature and expert advice.

The recommended activities for establishing sector beliefs were as follows:

- Implement an online survey of ECA members and other interested stakeholders to gain a broad understanding of current sector-held beliefs about young children and digital technology (see Appendix 2).
- Engage with young children through focus groups to establish their understanding of digital technology and their perspectives on using technology at home and in early education and care settings (see Appendix 3).
- Invite sector opinion on the rationale for the statement and suggestions for the content of the statement from participants at a plenary session workshop at ECA's 2017 Live Wires Forum (see Appendix 4).
- Engage the sector in conversations about young children and digital technology using purpose-designed video prompts on social media and through the ECA website (see Appendix 5).

The recommended activities for establishing an evidence base about technology use by and with young children were:

- Conduct a systematic review of recent literature about technology use by and with young children to understand the current evidence base about young children and digital technology.
- Invite presentations to the Digital Policy Group by experts on topics such as physical activity and digital technology; young children's patterns of digital technology use at home; and ethical considerations about young children and digital technology.

## Appendix 2: Online Survey Summary

### Background

To help inform Early Childhood Australia's development of a statement on young children and technology, an online survey was developed by the ECA Learning Hub team to investigate the sector's attitudes, perceptions and needs in relation to young children's use of digital technology.

The survey was promoted via multiple channels, and 515 responses were gathered with good representation across the states and territories of Australia. Of the respondents, 44 per cent identified as early childhood educators or pre-service educators; 29 per cent were parents, guardians or family members; 25 per cent were early childhood administrators, managers or directors; and 22 per cent were other professionals, including school teachers, health workers, government employees, and others (respondents could nominate more than one role).

The majority of the participants were female (93 per cent), with 4 per cent of respondents aged 25 years or younger, 34 per cent aged between 26 and 40, 59 per cent aged between 41 and 64 , and 3 per cent aged 65 or older.

Twelve statements were tested, focusing on attitudes towards young children and digital technology. Three open-ended questions were asked about what excited and what concerned participants in regards to digital technologies in the lives of young children, and what participants believed were the areas where most advice or guidance is needed in a Statement on young children and digital technology use.

### Findings

#### 1. Statements about attitudes towards young children and digital technology use

Attitudes were split, with between one-quarter and half of respondents having negative attitudes and a similar number having positive attitudes, regardless of participants' role in relation to early childhood. Examples of the divergent attitudes can be seen in the table below.

Statements about attitudes towards young children and digital technology use	Strongly disagree or disagree	Neither agree or disagree	Agree or strongly agree
Young children do not need to be skilled users of digital technologies	49%	16%	35%
Acquiring technology skills will assist a young child in the future	52%	11%	37%
Digital technologies have great potential benefits for young children's learning	52%	11%	37%
Early learning services are appropriate places for children to acquire skills in using digital technologies	58%	14%	28%

## 2. Responses to open-ended questions

### 2.1 Excitement about young children and digital technology use

In response to the question *What excites you about digital technologies in the lives of young children*, five key themes emerged:

- The access to **unlimited information and knowledge** that digital technology offers children, including information being available in a timely way that makes it relevant to children's learning opportunities.
- The ability to facilitate children's **connection to the world** in which they live through exploration of cultures, languages, landscapes and peoples, and to connect with others around the world, including family and friends overseas.
- The capacity of children to quickly and confidently acquire **digital literacy skills** that many participants saw as an integral part of their world, and potentially their futures.
- The opportunities for **new, engaging and interactive ways** for children to learn, and for educators to innovate in the area of pedagogy.
- The support and enhancement of learning, i.e. digital technology can:
  - enable young children to be creative and explore the world they live in
  - support individual learning by tailoring the learning experience to account for different learning styles and interests
  - promote independent and self-directed learning, with independent thinking skills
  - support collaborative learning with adults or other children
  - support the inclusion of children with developmental delays or disabilities, especially those with communication difficulties.

A small group of participants (11 per cent) expressed limited or no reasons for excitement, indicating that children 'do not need this at such a young age', and expressing beliefs that 'children should be free to play and learn away from digital technology' and that 'they have too much exposure to digital technology'.

### 2.2 Concerns about young children and digital technology use

In response to the question *What concerns you about digital technologies in the lives of young children*, four key themes emerged:

- The **overuse of digital technology by children**, including that time spent using digital technology displaces the amount of time available for other types of imaginative play in the non-virtual world, being outdoors in a natural environment, developing social skills, and engaging in physical activity.
- The **misuse of technology**, including that young children are given devices by adults to entertain them when adults are otherwise engaged, and that children are often engaged in passive viewing when using digital technologies.
- The **potential detrimental effects** on children from using digital technology, including:

- the risk to children’s privacy online, as well as online safety and exposure to inappropriate material
- the risk of children becoming addicted to digital technology-based activities, which may become socially isolating and difficult to manage
- negative influences on children’s mental health and their development of social skills and emotional intelligence
- the risk of children losing the ability to entertain themselves; that digital technology use discourages trial and error, promotes instant gratification, and leads to a short attention span
- that technology impacts negatively on children’s ability to play and learn, risks them becoming passive observers in play, and decreases their imaginative play and creativity
- negative physical impacts such as damage to vision, poor fine and gross motor skill development, poor posture, increases in weight, and impacts on sleep.
- That **adults lack the knowledge or information** about how digital technology can be used positively by young children, or how to manage children's digital technology use. Conversely some respondents expressed concern that parents didn’t understand the possible negative impacts of digital technology use.

### 2.3 Need for advice or guidance in a Statement for young children and digital technology use

In response to the question *In what areas do you think guidance or advice is most needed in a Statement on young children and digital technologies*, three key themes emerged:

- Guidance in regards to **how much time and what type** of digital technology is appropriate for young children. Some respondents noted that guidance by age would be useful.
- Guidance about what **appropriate use** of digital technology is with young children, e.g. ‘good’ technology use, for educational purposes versus entertainment, ways to use technology to support learning, and guidance on age appropriateness.
- Guidance on protecting the safety and privacy of children who are using digital technology in an online environment, including future privacy concerns of children who are currently unable to manage their own content.

A detailed report on this survey has been prepared and submitted to a peer-reviewed journal.

## Appendix 3: Children's Voice Focus Groups

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### *Background*

To help inform Early Childhood Australia's development of a Statement on young children and technology, 10 focus groups were conducted with children aged between two-and-a-half and five years old. The focus groups were held as a means to ascertain children's views about their experiences and understanding of digital technology, in an acknowledgement that children are key participants in the debate about technology and its place in early childhood. The findings contribute to the development of the statement to guide early childhood educators and parents in the optimal use of digital technology with young children.

Each focus group was conducted by an experienced early childhood educator and involved between four and six children who were engaged in age-appropriate activities to elicit their responses to digital technology.

The focus groups included discussion time, brainstorming of ideas and interactive activity time. Activities were in a format that was fun for young children to engage in (activity cards, story-telling, drawing, a box full of digital devices), and served as a prompt for the children to talk about technology, how they use it, and what other things that they enjoy doing. The activities were designed to provide insight into children's views on using technology and discussion about their experiences using a variety of digital technology devices: what they thought about it and what they would like their families, peers, educators and others to know about their use of technology.

### *Findings*

The following key themes were drawn from qualitative analysis of the children's verbal responses and observed changes in their physical behavior.

- **Technical knowledge:** Children demonstrated extensive knowledge across a range of technologies, identifying and naming a range of devices that were presented to them. They also demonstrated an understanding of the device's functions, e.g. external hard drive: 'that's to put your music on'; and how the devices related to context, e.g. 'you have to use it at home because that's where the Wi-Fi is'. Tablets featured heavily in the children's drawings and conversations, indicating their high level of familiarity with these devices.
- **Language:** While engaging with the technology activities, children demonstrated use of a range of language skills, including naming colours, use of directional language (e.g. over, around) and other problem-solving conversations. This highlighted that digital technology may provide good opportunities to extend and promote children's language development if used in appropriate ways.
- **Children's perspectives on technology usage:** Children indicated that they were familiar with habits and rules for using technology, and primarily reported on these with regards to their own home situations. Children reflected that adults in the home environment had made guidelines and set boundaries with respect to digital technology use, e.g. 'Mummy and Daddy have to let me'.



Children's knowledge of technology potential and use also appeared to be impacted by family contexts, in particular siblings. Many children who had older siblings were able to explicitly articulate how to use games and apps as well as the rules about how and where they could use them, and when might be an appropriate age to use specific functions/apps.

The children's commentary indicated that they use technology at home primarily to watch shows and YouTube, e.g. 'I can watch things like *Octonauts* on my dad's iPad'. However, when children used activity cards to talk about their activity preferences, 60 per cent of children selected non-technology activities (from outdoor/sporting activities to drawing and painting) as their preferred activity.

- **Engagement/Emotions:** All children responded positively to the technology activities, demonstrating excitement, anticipation and fun, with many asking 'what else is in the box?' Exploring the unknown (Sphero, Cubetto, an old sliding mobile phone) generated a lot of interest, with children wanting to take ownership of items and explore independently. In these instances, the technology acted as a catalyst for child-led exploration, with the researcher scaffolding and guiding the experience to ensure smooth operation only.

However, not all children were interested in all technology activities, indicating that personal preference and interest affects engagement with technology.

The picture below is an example of how children were able to describe digital technology use in their daily lives.



***'My tablet on a sunny day, with different games to play.'***

## Appendix 4: Live Wires Forum: Summary of Feedback

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### *Background*

At the 2017 Live Wires Forum, which was held in Melbourne on 25 November, attendees participated in a plenary session about the development of the Statement on digital technology and young children. Participants were asked two key questions about digital technology, and these were discussed in table groups of between 2–10 participants. After the small-group discussion, plenary discussion took place, with each group presenting their thoughts to all participants. The notes taken during the small-group discussions were collated and synthesised into themes for each of the questions. The key themes are summarised below.

### *Findings*

#### **Question 1: What challenges you about digital technology and young children?**

- **Policies:** The need for guidance in regards to developing policies on the use of digital technology in child care services, but also with regards to protecting the privacy of children and ensuring their safety when using technology, and how children’s rights can be protected.
- **Technology resources:** Some educators mentioned that new resources were expensive and difficult to access, others indicated that they had resources that weren’t being utilised effectively. Some raised the issue of maintenance and technical support for using resources. Concerns were raised about equity of access to resources, particularly in rural areas.
- **Educator attitudes:** Many comments reflected on the negative attitudes of some educators in regards to digital technology; that educators either didn’t want to use digital technology, didn’t think they had the skills and weren’t interested in getting the skills, valued other activities ahead of using technology, or didn’t have confidence in their own digital technology skills and therefore felt they couldn’t teach children how to use it.
- **Educator skills and knowledge:** Educators expressed significant concern about having the time to investigate resources and software, and obtain the skills needed to use digital technology with young children in the classroom. It was mentioned that using digital technology wasn’t included in professional training for educators.
- **Pedagogy:** Educators expressed concern about using the correct platforms for digital technology, how to integrate technology into the classroom, and how to build a quality program using digital technology. Educators were keen to choose appropriate activities, use digital technology in a thoughtful way, and be able to reflect on its use. They are challenged by wanting to integrate digital technology in a balanced way in the classroom.
- **Healthy use:** The comments revealed that educators feel challenged by the potential misuse of technology; they worry about children becoming ‘addicted’ to technology, that technology could drive emotional disconnection, that children must have a healthy balance of technology and other play, and that they don’t want devices to be used as a distraction for children. They talked about getting the balance between technology and real life right, and wondered about the value of focusing too heavily on the ‘screen time’ measure.
- **Parents:** Educators felt challenged by parents’ expectations around the use of digital technology (different expectations) and parents’ preconceived ideas, informed by the media, about what it means to use digital technology in the classroom. Also presenting a challenge for educators are

parents who do not model appropriate use of technology, and the fact that that parents often don't have good knowledge to draw on when choosing apps for their children.

## Question 2: As a professional educator, how can a statement support you?

- **Advocacy:** Many educators identified that the statement would be useful as a supporting tool for advocacy. It could be used in discussion with parents about what is happening in the classroom, why educators are doing what they do, and to start conversations with parents about using digital technology. Repeatedly the statement was identified as a conversation starter with stakeholders, to build awareness and to discuss challenges.
- **Governance:** The statement would support the development of centre policies on technology.
- **Guidance for educators:** The statement would help guide educator practice on ways to use technology with young children, e.g. for creating not just entertaining, and deliver clarity about integrating technology into classroom, based on research to achieve best practice. It could help empower educators to support low tech as well as high tech; recognise the difference between quality and quantity of digital technology use; and help people make sense of technology. The statement will help support educator creativity and inform quality pedagogical decisions.
- **Technology use by educators:** The statement would assist educators in their own relationship with digital technology by defining imperatives such as the need to protect themselves when using their own technology; developmental progression of technology skills; and challenging educators to reflect on their practice if they are avoiding technology.
- **Guidance for parents:** The statement would help early childhood professionals build their capacity to educate parents in their responsibilities. It would support educators to explain the use of digital technology in the classroom to parents and other educators, and provide evidence to support quality technology integrations and effective pedagogical practice.
- **Guidance on ethics:** Ethical guidance for use with young children, how to make ethical decisions regarding digital technology use.
- **A statement should also:**
  - build a common language for the profession for sector-wide consistency
  - build professional respect for the early childhood education and care space
  - support translation of evidence into improved practice
  - not be prescriptive a guideline
  - not be another layer e.g. *Early Years Learning Framework* or *National Quality Framework*
  - support writing policies for digital technology use at the centre
  - inform training pre- and post-service.

## Appendix 5: Summary of online engagement

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### Background

As part of the continuing engagement with the sector about digital technology and young children, seven short online surveys were hosted on the Early Childhood Australia (ECA) website. The surveys asked both open-ended and closed questions on a number of key topics and were accompanied by a short video provocation from leading experts in the field of digital technology and young children. The survey topics were:

**Survey 1:** What should the statement include?

**Survey 2:** Issues for parents using digital technology with and around young children

**Survey 3:** Guidance on young children, posture and movement for tech use

**Survey 4:** Screen time and parent guidance

**Survey 5:** Ethics and digital technology

**Survey 6:** What is digital play?

**Survey 7:** Digital play in the classroom.

The surveys were promoted via the ECA Facebook page throughout the months of December 2017, January 2018 and February 2018, and promoted to ECA members and Live Wires participants via email in late February 2018. Facebook posts linking to the surveys were put on hold from mid-December to mid-January due to the summer break.

### Findings

The responses to individual questions within the surveys are summarised below in themes. Open-ended responses were also collected from the Facebook posts that were used to promote the surveys. The number of responses gathered for each question is indicated.

### Part A: Guidance on digital technology use with young children

When asked ‘*What age range do you think that a Statement on digital technology and young children should cover, as it seeks to provide guidance across a range of issues for educators, parents and carers?*’ (41 responses), 83 per cent of respondents indicated that a statement should cover the birth-to-eight-year-old age range.

#### **What issues would you like to see addressed in a statement on digital technology and young children? (77 responses)**

##### **Guidance on positive use—play and pedagogy:**

Guidance as to what constitutes good pedagogical practice using digital technology; using technology as a tool and resource with young children in a positive, purposeful way; and clarity about what this looks like. Joint attention, social interaction and social-emotional wellbeing, creativity, research, new forms of storytelling, to assist children to make meaning of their world; integration of digital technology into play, so children move around, interact with each other and with other objects; guidance on applications and technologies; guidance on a language to communicate with others about why opportunities to use digital technology are important for young children; and training for early childhood educators (39 responses).

**Restrictions:** Guidance about setting restrictions or recommendations around time that young children should spend on digital technology devices, potentially by age, and by context and content; a clarification of the difference between active and passive screen time. (30 responses).

**Health and wellbeing:** Evidence-based information about appropriate use and potential harms of digital technology use with young children, and how to ensure health and

wellbeing during the early years. Information about the potential harms—the impacts on children’s capacity to self-regulate their use; addictive behaviours; infants and toddlers; relationships; cognitive, social and language development; and on the time displaced for other activities, such as physical play, nature play, and play with real objects. How children’s use of technology can be meaningful, and not take time away from development of conversation and language skills (17 responses).

**Adult modelling of technology:** Respondents expressed concern about the way parents use technology in front of young children, how this would affect the parent–child interaction and how it would impact on the modelling of positive digital habits for young children (14 responses).

**Good digital habits:** Guidance such as a graphic like a food pyramid or healthy eating plate that illustrates a typical day for an infant, toddler, preschooler and school-aged child; guidance about the importance of appropriate use, both in length of time and handling of equipment; how to interact with others whilst using technology; how to teach self-regulation; understanding the purpose of the technology; teaching balanced use (11 responses).

**Safety:** How to educate parents in making sure content is safe and appropriate, and advice about how to keep children safe in an online environment (5 responses).

**Access to digital technology:** Respondents gave feedback that the statement should take into account socioeconomic status and access to technology, and ensure that it doesn’t perpetuate a digital divide (2 responses).

Do you agree that educators and carers of young children should play an active role in children’s development of digital technology practices, behaviour and skills in the years before school? (82 responses)

Disagree or strongly disagree	16%
Neither agree nor disagree	6%
Agree or strongly agree	78%

As an educator or parent, would you like to receive guidance to navigate this new technology landscape with young children? (70 responses)

Yes	83%
No	17%

Would you find it useful to have guidance on screen time limits? (49 responses)

Yes	90%
No	10%

Education and care settings from birth to school age are a good place to begin using digital technology and learning about healthy digital practices. (66 responses)

Strongly disagree	26%
Disagree	7%
Neither agree or disagree	21%
Agree	32%
Strongly agree	11%

Provided there is guidance about physical health and wellbeing, what age do you think children can start to engage with digital technology? (66 responses)

From birth	7.6%
From 6 months	7.6%
From 12 months	7.6%
From 18 months	4.5%
From 2 years	18%
From 3 years	13.6%
From 4 years	10.6%
From 5 years	8%
Other (11% supported 8–10 years)	21%

What are the most important ethical considerations when it comes to technology use by, and for, young children? (164 responses)

Children’s right to guidance, information about digital technologies as part of learning	92%
Whether and how children can have a say over the data and images about them that are gathered, used and displayed	85%
Adult uses of technology to create, record and disseminate images and information about children	83%
Children’s access to their own data and images that are created and stored by adults	84%
Children’s right to access digital technologies	69%

At what age should we begin to guide children to develop skills about their digital footprint and their digital responsibility? (156 responses)

From 12 months	17%
From 2 years	13%
From 3 years	23%
From 4 years	14%
From 5 years	33%

## Part B: Digital technology in early learning settings

Eighty-five per cent of educators reported that they use digital technology in their classroom, with an additional 10 per cent indicating that they would like to. Only five per cent of educators said they don't use it because they don't want to.

### What kinds of technology are available for use by children in your classroom? (42 responses)

Tablets (for games, camera, video, research)	90%
Screens for watching video/TV content (e.g. TV, tablets & laptops)	57%
Other 'non-screen' technology	33%
Robotics	29%
Other (respondents included data projector, stereo, cameras, whiteboard/smart board, coding, ELLA, beebops)	29%

When asked '*Do you think it is unethical to exclude technology in young children's learning environments?*' (164 responses), 49 per cent of respondents said 'yes', giving reasons such as:

- It's a part of their world, our world.
- Allows educators to discuss and model good digital practices.
- Digital technologies should be normalised, not stigmatised.
- Non-integration is a backward step.
- Children have a right to information (with guidance).
- Some children don't have home access.
- It's not 'unethical' but it is unwise to exclude.

Thirty-eight per cent of respondents said that they didn't think it was unethical, providing reasons such as:

- Children are over-exposed to technology in other environments.
- Technology is misused by some parents and educators.
- Focus should be on non-technology interactions—children should live in the real world as long as possible.
- Because children's agency can be supported in the learning environment without digital technology.
- It's not a priority.
- Not unethical as long as the decision to exclude is made within a philosophy/theory that validates withholding access. Happens at Montessori and Steiner.
- Digital-free spaces are also important and increasingly difficult to find.
- We don't fully understand the impacts on development as we do with traditional play.

### Can you share examples of how digital technologies could be used to foster physical activity? (60 responses)

- Music and dance, exercise, yoga and mindfulness activities (27).
- Researching (6).
- Activities and apps that require walking around (5).
- Apps that encourage physical activity specifically (3).
- Using the camera (2).
- Games that improve fine motor skills and hand-eye coordination (1).
- As incentive or reward (2).
- It's not appropriate (10).

**Can you share examples of young children in early learning settings balancing or integrating tech use with other aspects of their daily routine? (51 responses)**

- For research purposes, for children to learn about the world around them (14).
- For music and movement activities (10).
- Through use of photo and video functions (8).
- To learn languages (4).
- Digital whiteboards (2).
- Creative arts (1).
- Literacy and numeracy apps (1).
- Storytelling (2).
- Social and emotional learning; rating feelings (1).
- No, either don't use it or don't believe it should be included in early learning setting (13).

**What does digital play mean to you? (41 responses)**

- Playing games on iPads or computers, using computers and iPads to learn.
- Using digital media to transmit sound, vision, music, film and games.
- Not just passive viewing. Using technology with meaning.
- Learning how to use the actual technology and then utilising it in imaginative play.
- Children learning through the use of digital technology in their free and directed play.
- Integrating digital technology into play and learning experiences through the day, embedding into the program.
- A convergence of traditional and digital play—learning experiences woven in together.
- 'Screen time' and games—I don't have a deep understanding.

**What are the benefits of children using digital technology in the classroom for play? (41 responses)**

- Have instant access to information about the world.
- Understand technology better for future use, prepares children.
- Good learning tool—can be used as strategic learning enhancement.
- Visual/audio/interactive platforms can be engaging and stimulating.
- Can facilitate more inclusive classrooms for children with disabilities.
- Stimulates discussion with children and parents about good digital practices.
- Enhances learning and social engagement.
- Quiet time, solitary play.

**What kinds of technology are available for use by children in your classroom?**

(42 responses)

Tablets (for games, camera, video, research)	90%
Screens for watching video/TV content (e.g. TV, tablets, laptops and desktops)	57%
Other 'non-screen' technology	33%
Robotics	29%
Other (respondents included data projector, stereo, cameras, whiteboard/smart board, coding, ELLA, beebops)	29%



## Part C: Parent/adult modelling of digital technology

As a parent, do you use technology in front of children who are under 8 years of age? (33 responses)

Never	0%
Rarely	14.5%
Occasionally	33%
Often	43.5%
Constantly	9%

For what purposes [do you use technology in front of children]? (33 responses)

Text messaging	85%
Phone calls	82%
Research	60%
Social media	51%
Watching TV or online content	31%
Playing games	19%
Other	13%

*'I do try to use my phone sparingly when my two-year-old is awake and try and reserve it for when she is asleep. I do answer phone calls and important text messages when she is awake but ensure that I quickly respond and then put my phone down and say to my daughter, "Come on, let's go and do something". We live in a very tech-savvy world now so I want her to know that it's ok to use this technology but that her life shouldn't revolve around it.'*

**How do you model positive behaviours to children in regards to digital technology through your own use of technology? (how many responses?)**

- **Limiting use in front of children**

*'90 per cent of my use of my phone is not done in front of my child—if he is talking to me I always put my phone down and pay him full attention.'*

- **Establishing technology-free times**

*'No use during meals, no texting or touching the phone while driving, and try to leave phone aside when speaking to the children.'*

- **Ensuring positive social interactions**

*'Putting the phone away when in the company of others and trying to not allow it to distract or interrupt the live interactions.'*

- **Clearly stating the purpose for using digital technology**

*'I educate my children about what I use my "phone" for, i.e. paying bills, replying to emails, etc.'*

- **Difficulty modelling positive use**

*'I don't believe I'm modelling positive behaviours, technology takes time away from time spent with my children.'*

*'Limit use when children are awake. Leave phone in bedroom or bag so as not to be tempted by it.'*

*'I could improve positive behaviour by using it less for social media.'*

## Appendix 6: Literature Review Summary

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### *Background*

The Early Childhood Australia Digital Policy Group (DPG) commissioned Professor Susan Edwards to prepare a review of literature especially pertinent to ECA's development of a Statement on young children and digital technology. Together with Dr Ana Mantilla, a preliminary review was conducted and the search terms and scope of the review discussed with the DPG and refined.

The final review focused on peer-reviewed articles published in English from 2012 to August 2017 about digital technology use by and with young children (birth to eight-year-olds) in home or early education settings. Articles on screen time, passive media, subject education and adult perspectives were excluded.

### *Findings*

From an initial list of more than 11 000 articles, 26 articles were included in the review, covering four areas: healthy practices, relationships, pedagogy and digital play. The articles covered studies involving about 4,000 parents, 400 children and 100 teachers and included randomized trials, laboratory studies and case studies utilising a number of theoretical frameworks.

#### 1. Healthy Practices

- **Posture:** A single study was identified which specifically examined musculoskeletal risk for young children using new mobile digital technology. The laboratory study reported neck and wrist posture and movement as possible issues of concern with tablet computer use. Authors also noted the important role of adult modelling and supervision of young children.
- **Sleep:** Several articles were identified which reported evidence of screen use close to bedtime and exposure to violent media had negative effects on the amount and quality of sleep in young children.
- **Video-chat:** Live video chat was explored in two studies and found to have potential to assist in learning.
- **Fine motor:** One study was reviewed which suggested earlier fine motor development with touchscreen use by young children.
- **Ease of interaction:** The review reported on one study which found young children could independently interact with touchscreen devices in a way they couldn't with keyboard/mouse-driven computers and that this interaction was similar to how they interacted with non-digital toys.

## 2. Relationships

- Whilst the review found few papers reporting on this topic, evidence was found for use of digital technology to influence the quality and quantity of communication between early learning centre and families, but also noted that some families lacked the skills or resources to take advantage of the online communication opportunities. One paper reviewed found use of digital technology increased teacher status and perceptions of family agency and the value of children's work.

## 3. Pedagogy

- Eleven of the 26 studies included in the review focused on pedagogy.
- **Social interactions and knowledge construction:** Four papers reported on this theme with evidence presented that children had greater social interaction in well-designed technology-focused activities, including with peers and educators.
- **Teaching/learning with digital technology:** Three papers reviewed looked at the use of digital technology in teaching music and STEM, and using games and videos in teaching. The papers reported positive impacts on learning and argued that meaning-making should be an important part of technology use by young children.
- **Digital media production:** Three papers were identified which examine children using technology in creative production. Findings suggested digital narratives were less literal and more dynamic. The activities were also seen to promote multi-modal learning and collaborative construction.

## 4. Digital Play

- Five studies were identified which examined the important area of digital play. Digital technology use in free play was observed to create digital placeholders in their activities. Another paper described how young children use digital technology for exploration and problem-solving play as well as imaginative and representative play. A further paper demonstrated how teachers can integrate digital and traditional play activities and understand digital play as a viable learning experience in early childhood education settings.

The review ends with a number of suggestions for appropriate ways to use digital technology by and with young children.

A detailed report on this survey has been prepared and submitted to a peer-reviewed journal.

## Appendix 7: Early Childhood Australia – Digital Policy Group

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### Co-chairs

Professor Susan Edwards  
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Professor Leon Straker  
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