

This essay is an exploration of the use of ICT and digital media by young children and how this supports holistic development. The effectiveness of digital devices will be critically evaluated and the positive and negative aspects of access to ICT and digital media on children's learning and development will be considered.

Young children are now exposed to digital technologies since birth and have digital experiences from very early stages of their childhood. Children's toys are now smart toys and family homes are filled with digital technology. Brito et al (2018) By the age of 10 children now have access to multiple screens at home and are often engaging in more than one screen at a time. Almost half of all infants watch television for nearly 2 and a half hours a day. Sigman (2012)

The use of digital media has its benefits, but these benefits depends the age, developmental stage and characteristics of the child. It also must be considered how the media is used. Chassiakos et al (2016)

Since the introduction of the first iPad in 2010 the evolution of digital devices for young children has quickly increased. Toddlers are now known to be able to navigate application and complete child friendly digital games as well as access photos and videos and it has been found that before a child's first birthday, they are able to operate the internet by swiping. Arnott et al (2018)

Hutchison et al (2012) states that the use of portable digital devices such as the iPad promote anywhere learning in schools and allows children to learn in unique ways. It said that using digital devices that are mobile encourage ubiquitous learning through their ease of portability and access to information. Using an iPad provides useful opportunities for literacy in the classrooms, advantages of having digital texts can support readers text comprehension and also provide opportunities for children to read books with audio support, word-by-word tracking and picture animation which potentially will engage children who struggle to read. On the other hand, Liberman et al (2009) believes that through digital media children can be introduced to ideas about mathematics and communication competence that have previously been considered too advanced, difficult to understand and carry out at such young ages.

The National Literacy Trust (2016) recognise that technology already plays an important role in children's reading practice however, using touchscreens to read not perform the same function as a print-based reading but may have a vital role to play in emergent literacy for disadvantaged children.

A study conducted within an educational environment with children aged 5 years old found that the use of iPads and other computing devices can be used to support literacy learning in the early years. It was found that the technology is flexible to use and attractive for early years learning. This study also found that the use of technology can support independent learning by very young learners. Lynch and Redpath (2014) In contrast to this study Goodson (2003) argues that literacy and stories should be a social context which leads to new understandings.

Revelle (2013) Highlights the positives of using touchscreens and how they can be used to scaffold children's learning as unlike socially interacting with a partner, touchscreens can provide immediate, contingent feedback which means they have similar features to play in the real world. O'Connor (2017) agrees with this and states that the use of

touchscreens can help children develop earlier than some physical toys. Some children may be able to use these devices to solve puzzles earlier than they would with a physical toy as they may not have developed the ability to operate physical pieces of a puzzle.

Fred Rogers was a graduate in children's education who went on to create educational TV programmes for children. He believed that that digital playthings and learning aids are tools for education and their potential lies within the hands of the people who program them and show children how to use them. It was seen that technology was a way to help children express their feelings and strengthen family relationships. Sharapan (2015)

Media literacy is giving children the opportunities to develop the life skills they require to become thinkers and makers in the multimedia environment that is their reality. Digital devices now give people access to a vast amount of information and children need to possess the skills to be able to navigate the devices in order to gain the new knowledge. Rogow (2015) However, Douglas et al (1984) expressed worries about computer systems and how they would impact children's thinking, metacognitive ability and cognitive development. It was believed that computer systems would have a negative influence on children's abilities to describe directions. This goes against Seymour Papert's belief who was sure that the use of computers and digital devices would expand children's intellectual power. Papert based his ideas on the theories of Jean Piaget and argued that the most beneficial learning is learning without being taught and he suggested that the use of computers would allow children to learn effectively by making the learning more concrete and personal. Papert (1980)

Findings have said that robots can assist children with development of mathematical problem solving, help young children acquire new vocabulary, develop motor, social and intellectual skills and are effective in helping children learn colours.

A recent study looked at how effective the use of various types of robots in early educational settings were on children's development. The study took place over a short period of time within three different classrooms with a mix of children ages 3, 4 and 5. The outcome of the study revealed that the children enjoyed the experience and the impact of the robot on children's social development, empathy and manners was positive and the robot supported language and communication, physical and cognitive development. In contrast the children were unsure on how to work the robot meaning there were instances where there was unsuccessful communication with the robot which lead to frustration and some children had a short attention span leading to a loss of patience. Crompton et al. (2018)

Chassiakos et al (2016) reports that there is evidence that shows that there is limited educational benefits of media for children under 2 years old and recommendations by Earlier American Academy of Pediatrics state that media exposure for children under 2 years old should be discouraged. Essential skills such as social-emotional, cognitive, language and sensorimotor are still developing before a child turns 2 years of age which require social interaction with trusted caregivers for successful maturation. Research suggests that interactions with parents is much more effective than video for learning new verbal or nonverbal problem-solving skills.

Children can learn from digital media, but adults play a key role in scaffolding the learning. If a child is using a 'word learning' application, it is important for adults to watch the video

with them and reteach the words to help build the language skills. A study found that infants whose mothers had talked with them during educational media use showed more advanced language development than infants whose mothers did not talk to them. On the other hand, a more recent study has shown that children between the ages of 15 – 24 months can learn from repeated viewing of video without adult help. Sign language symbols were learnt over a short period of time from continually watching the same video. However, this was compared to a study where parents used a book to teach the same content which revealed that through this method the knowledge was maintained for a longer period. Chassiakos et al (2016)

Johnston et al (2018) Recognise that technology is now a part of children's everyday lives and having access to technology is now an everyday occurrence and is now plays a key part of children's understanding of the world. In addition to this Gibbons (2015) emphasises the importance that childhood educators need to gain the information and understanding to support children with the new evolving technology and how educators need to review curriculums to ensure they promote children's emerging development as digital citizens. This links with the vision and design for the curriculum in Wales and the four purposes set out to support all learners to become. Within the four purposes it states that learners will be supported to use digital technologies through mandatory cross-curricular skills of literacy, numeracy and digital competence giving them opportunities across the curriculum to be confident users of a range of technologies to help them function and communicate effectively and make sense of the world equipping them with lifelong skills. Welsh Government (2020)

The Digital Competence Framework emphasises the importance for children to have opportunities to gain the skills and knowledge that enable them to be confident, creative and critical when using technologies and systems to ensure they are informed and capable of having a best chance of success in society today. The framework explains that through education some of the skills and knowledge children will learn are rules of how to keep themselves safe online, gain a understanding that everything that is posted online leaves a digital footprint, learn how to communicate through different forms and explore and use a variety of different media components.

Successful Futures outlines the purposes of a new curriculum and the curriculum structure. Within the structure alongside literacy and numeracy, digital competence is cross curriculum. Demands within the workplace for increasingly high levels of digital skills and it is predicted that this will continue in future. Welsh Government (2015)

There are risks of harm for children when it comes to technology. Some risks are down to a child not having the knowledge of how to negotiate adult-designed content and other real risks such as sexual grooming, insomnia, obesity, low self-esteem and addiction which can sometimes be overlooked. While these risks exist children still want less e-safety. 5 Rights Foundation (2017) In addition to these risks Sigman (2012) calls attention to the amount of daily screen time children are exposed to after school hours and how this is being considered an independent risk factor for disease. He adds that studies have found links between screen time and risk of type two diabetes and cardiovascular disease. Furthermore, The American Academy of Pediatrics (2011) voice that there are potentially negative effects and no known positive effects of media for children under two years of

age.

Children aged 3-5 and now beginning to learn that there are social rules and norms to follow. It is suggested that children this age should only use technology with adult guidance as children of this age are taking their first steps towards independence but will only develop when digital habits are established. 5 Rights Foundation (2017)

Palaiologou (2016) Explain that new technologies represent a fundamental change for education and will provide opportunities for active learning experiences that will empower people to enquire, critique, create, collaborate, problem solve and create understanding and that technology cannot be ignored by educational organisations.

The Department for Education (2019) has set out new guidance to support schools to teach pupils how to stay safe online. This guidance will be on offer from September 2020. It is recognised that children are growing up in an increasingly complex world, living their lives seamlessly on and offline which possess positive, stimulating opportunities but also risks and challenges. The Department of Education set out to ensure pupils are given the knowledge needed to use the internet and technology in a safe and respectful way in order to gain the benefits that the online world has to offer.

To summarise, children need to obtain skills needed by employers and workplaces to move smoothly and successfully into employment. Workplaces already demand increasingly high levels of digital competence and this will only continue to grow in the future. Teachers need to follow a curriculum to enable children to develop these skills and attitudes Successful Futures (2015) Parents need to follow recommendations to help educate and scaffold technology for children on how to use digital media safely and age-appropriately to ensure they get the most out of their digital learning. Ofcom (2017)

Ofcom (2017) Survey Responses:

Advice seeking and awareness survey responses:

Only 35 per cent of parents/carers of children aged 3 to 4 years old had spoken to their children about online safety compared to 87 per cent of parents/carers with children aged 12 to 15

Only 37 per cent of parents/carers said they used all four strategies suggested by Ofcom to keep children safe online

Taking action to stay safe online survey responses:

Less than half of children aged 12 to 15 (44%) said they are aware of how to change their settings to control who could view their social media

Ofcom (2017) Four suggested strategies to help keep children safe online:

Technical tools, including content filters, PIN/passwords, safe search and other forms of technical mediation.

Having regular conversations with children about how to stay safe online.

Setting rules around what children can do online.

Supervision of children when online.

Watching television can impact on children's conceptions of social reality as it will reflect what they see

Gerbner (1994)

Throughout childhood children will spend more time watching television than they do in school

Sigman (2012)

SAFEGUARDING CHILDREN

In the Digital World



Http by Soft Power (2019)

Have you spoken to your child about how to keep safe online?

O2's Net Aware research spoke to 2059 children and asked them how often their parent/carer had spoken to them about keeping safe online:

30% - Monthly

14% - Never

15% - No Answer

NSPCC (2019)

UNCRC Article 28

Children and young people have the right to education no matter who they are. They have the right to primary and secondary education and should be able to choose different subjects in secondary school with the option of technical



Recommendations for digital use by children by the 5 Rights Foundation (2017)

- Children aged 3-5 should only use technology with adult guidance.
- Older siblings should be encouraged to scaffold digital experiences for younger family members.
- Children aged 6-9 should have an internet filtering software on devices.
- Children aged 6-9 should be taught social norms of contact with other people.
- Children that receive smart phones should be taught how to use age-appropriate settings and safety features.
- Give greater support for children and young people who have been bullied and victimised online.

Supporting children online

Explore together – Talk to your child, explain to them what the internet is and explore it together showing them all the exciting things it has to offer and the educational benefits it entails.

Be in control – Make sure you have parental controls installed so you can limit what your child accesses and you have access to what they are doing.

Be involved – Encourage your child to use their digital devices in social areas like the kitchen so you can keep track on what they are accessing and this way you can share their enjoyment.

Help your child learn – Sit with your child and discover fun, educational online games to play.

Use passwords – Keep passwords on all devices and don't share them. This will also stop your child making online purchases.

Set boundaries – Make sure your child is aware of rules of what they can do and how long they can spend online from an early age.

Internet Matters (2020)

Protecting children from online abuse**Recognising**

A child who is experiencing abuse online may:

- Spend less time online than usual
- Be upset, outraged or withdrawn after using the internet
- Become secretive about what they are doing online and who they are talking to
- Have an increase in new phone numbers, text or emails

Prevention

- Learn about the risks of being online
- Develop the skills and awareness needed to keep safe online
- Learn about healthy relationships, abuse and consent from a young age
- Know where to go for help
- Know how to report unacceptable activity or behaviours

NSPCC (2019a)

28% of children aged 12-15 know someone who's had a negative experience online

Ofcom (2015)

Key legislation for online abuse

- Under the Communications Act (2003) it is an offence to make improper use of a public communications network.
- The Malicious Communications Act (1988) makes it an offence to send a communication with the intention of causing distress or anxiety.
- Website hosts are responsible for removing defamatory material posted to a site under The Defamation Act (2013)
- Social media platforms in the UK must follow a code of practice which highlights the actions they must take to protect individuals from bullying, intimidation and insulting behaviour online under section 103 of The Digital Economy Act (2017)

Danger Sign by PNG Mart (2018)



Early years children could be at risk of online content; inappropriate videos, harmful behaviour, giving permission for websites to share their location or data and spending real money via in-game purchases. Risk of contact; being abused by people they know or don't know, sending images or information to people. Risk of conduct; unhealthy behaviours, being unkind to each other, engaging in unhealthy relationships and using words or terminology inappropriate for their ages.

UK Government (2019)



Social Networking Sites by Jamie (2019)

Current strategies of parental controls or taking away phones are far less effective than providing a broad framework of knowledge and competencies.

5 Rights Foundation (2017)

1 IN 5 PARENTS THINK THAT THERE ARE NO AGE REQUIREMENTS AT ALL FOR SOCIAL MEDIA!

NSPCC (2017)



Children using phone by Lifehack (2020)

74% of 12-15 year olds and 23% of 8-11 year olds have social media profiles Ofcom (2017)
Most social Networks have their own codes of practice or community standards but there is a lack of transparency about how effective they are on safety and reporting features and there is no consistency about reporting processes across platforms.
NSPCC (2018)

Useful Websites:

www.nspcc.org.uk/keeping-children-safe/online-safety/
www.childnet.com/resources/smartie-the-penguin
www.childnet.com/resources/digiduck-stories
www.parentsprotect.co.uk
www.internetmatters.org
www.parentzone.org.uk
www.thinkuknow.co.uk/parents
www.internetmatters.org/advice/0-5/

Activity Plan		
Activity: Retelling of a fairy tale using digital devices (iPads) The children are to use a app on the iPads to retell a fairy tale of their choice using the camera to take a picture of scenes 1, 2 and 3 and then write what happens in each scene in their own words. (children can alter the scene and change characters to enhance the story line) The children will try to use the app independently, accessing the camera and transferring their photographs onto the app and then adding text to each photograph.		
Number of children: 6	Age of children: Ages 6 and 7 (Year 2)	Number of adults: 1
Location: Coety Primary School.	Preparation time: 10 minutes (ensure iPads are fully charged prior to the lesson)	Activity time: 45 minutes.
Resources: • 6 iPads • Fairy tale books • Puppets • Tricky word mats • Adjective mats •		
Aim/s of activity: The aim of this activity is to help develop the children's digital literacy skills. The children will be able to link reading a paper copy of a well-known fairy tale with the digital world in a unique way by recreating their own fairy tales.		
Links to outcomes: This activity is aimed to meet strands and elements within the Digital Competence Framework for children in year two. Welsh Government (2020b) Through creating their own piece of digital work, the children will add their name and the date to the work and the teacher will ask questions and discuss with the children as to why this is important. This will link with the element of digital rights, licensing and ownership. The children will also develop the skill of using digital technology to communicate with others by using an online collaborative platform to create or edit a file. When the children have created their digital piece, they will be supported to save their work and the teacher will discuss with the children the importance of saving files with an appropriate name. once they have completed this the children will then be asked to find their work and re open it. (if they are unsure of how to do this the teacher will support them) This links with the element of storing and sharing under the Digital Competence Framework. At the end of the activity children will have a discussion with their peers and the teacher and reflect on how they felt the activity went and what changes could be made. This links with the strand of evaluating and improving.		
Health and safety: Following Welsh Government (2016) National minimum standards the adult to child ratio for 3-7-year old's is 1:8. This activity will take place within school's grounds in the classroom. There will be at least two members of staff within the		

classroom and one teacher will work with the group during the activity. Risk assessments of the classroom are completed by the school health and safety officer prior to the start of the school day. Children will have a briefing of the activity and be told of the rules and expectations of behavior during the activity and will be made aware of any risks or dangers they may encounter when using the iPads. The iPad's used within the school are all complete with software and apps only appropriate for children and the children are already aware that they are only to use and explore the internet with adult guidance. The children will be supervised during this activity to allow the teacher to provide support and guidance when using the app and explain if any child has a difficulty. Though a teacher is present the children will be independently completing this task and have the freedom to risk assess appropriately.

Role of adult/adults:

The role of the adults during this activity is to provide a fun, purposeful and knowledgeable activity for the children following national guidelines for development while providing excellent care and ensuring their safety throughout. The adult will be present within the classroom and give guidance for the activity prior outlining the task and the reasons behind the task. The children will then be asked to complete the task independently where possible. The adult will be accessible to the children but providing them with enough freedom to develop their independence within the subject area. The adult will discuss with the children after the activity what went well, and any difficulties found and create a way forward with the children for future learning.

The activity:

The activity will take place within the classroom.

The teacher will begin by discussing the activity with the children, outlining what is expected of them and the reasons behind why the activity is being completed. Rules and expectations of behavior will be discussed with the children.

The children will begin by choosing the book they would like to use and setting their scene for their work.

They will then access the digital devices and begin taking pictures and using the appropriate application to write up their work.

The children will have 35 minutes to complete their work.

Once completed the children will save their work appropriately.

The group will then have a discussion with the teacher about how they felt the activity went and raise any difficulties.

The teacher will spend 10 minutes going through the activity and the app with the children to outline and address any issues.

The digital literacy activity chosen was age-appropriate in line with the Welsh Government (2020b) Digital Competence Framework and linked to strands and elements of the framework in line with year 2. In reflection of the activity there were important elements of the framework that were unable to be met due to the restricted nature of the activity chosen. The Digital Competence framework emphasises the importance of understanding how information online leaves a digital footprint trail and how children need to be supported to identify and understand the steps that need to be taken to ensure that personal data is kept safe and why this is done. The application used within the activity was a child safe, age appropriate application that did not allow children access to online data and this restricted the amount of knowledge and skills the children gained however, the children were supported to save their work during the activities and discussed with the adult the importance of saving work appropriately. This will aid further learning as the children will have already gained an understanding of how and why data is saved in a fashion before accessing and saving data online.

The Curriculum for Wales states that to become an enterprising, creative contributors' children should connect and apply their knowledge and skills to create ideas and produce and express ideas and emotions through different media. Welsh Government (2020c) This activity enabled children to express their creativity by enhancing well-known stories digitally. They were able to express ideas and emotions through adapting their work independently.

The use of print books within this digital literacy activity links with the emphasis on the positive effects that print books have on literacy. Children learn letter name and sounds from print books which are strong predictors of conventional reading and writing ability. Neumann (2016) Linking the various forms of literacy within the activity extends children's knowledge of different forms and contexts of text and how they can be used within digital technology to connect with others. Welsh Government (2020b)

Within the Foundation Phase Framework it states that for children to develop their personal and social development, well-being and cultural diversity skills they must have access to activities that support them to experiment with new learning opportunities, including ICT, have opportunities to reflect on decisions develop an awareness of dangers. Through the planned activity children were given opportunities to gain knowledge and develop skills in these areas. By using digital devices children were able to access ICT and by reflecting on the work they had created at the end of the activity it allowed children to reflect on what went well and anything they would change if they were to complete the activity again which also links with children's knowledge and understanding of the world. Before the activity children discussed with the teacher possible dangers they may encounter during this activity. On the other hand, this activity provided little opportunity for children to gain a better knowledge of the key dangers of being online as the application used for the activity was limited. If this activity was completed again in future a different application could be used that links with the internet to allow children to gain and develop their understanding of dangers online in a safe, supervised environment. Welsh Government (2015)

The New Curriculum for Wales places great importance of how the framework reflects

Wales, the language values, histories and traditions and the cultural heritage and diversity of the people. The importance of bilingualism within the curriculum gives all children the opportunity to learn languages in Welsh and English. The activity completed by the children limited their use of Welsh language and restricted the amount of knowledge they gained about Welsh heritage because of the selection of books given to them. This activity could be enhanced by allowing the children to choose their own books and encouraging children to use the Welsh language within their work. Furthermore, encouraging children to research traditional Welsh stories would provide opportunities to learn about histories, communities and other people of Wales alongside developing their digital literacy skills. Developing these skills will allow children to gain confidence in their identities and appreciate the contribution they and others make within the communities. Welsh Government (2020c)

Reading and writing can be a challenging task for individuals and some children may find it difficult to read print books. Using digital devices such as iPad's it allows for children who may struggle to understand text to use built in reading devices that will read aloud. This will benefit children who are visually impaired or struggle to sound words correctly which can aid children's development as they will be able to take part in activities with ease. Another positive aspect of using digital devices to read and write is the various features that provide print books in various sizes and print allowing children who may have difficulty to read small print to enlarge the words and also allowing children whose first language is not English to use a translation device to help understand and inclusively join in with activities.

To conclude, the digital literacy activity planned for the children had benefits and positive aspects as it provided opportunities to develop children's digital competence skills, linked with the foundation phase and new curriculum. Digital devices provide a range of essential learning benefits and aid children who may need support and assistance with certain aspects of their learning. Alongside these there is room for improvement, children weren't given enough choice to help develop their independence and develop skills and knowledge linked to the Welsh culture. The activity provided little opportunity for children to develop an awareness of the serious dangers of the internet which are essential to develop at a young age as digital devices have such a big influence on society today.

Reference List

5 Rights Foundation (2017) Digital Childhood.

Available at: https://5rightsfoundation.com/static/Digital_Childhood_report_-_EMBARGOED.pdf

Accessed 21st February 2020.

American Academy of Pediatrics (2011) Media Use by Children Younger Than 2 Years.

DOI:10.1542/peds.2011-1753

Accessed: 20th February 2020.

Arnott, L. et al. (2018) 'Digital devices, internet-enabled toys and digital games: The changing nature of young children's learning ecologies, experiences and pedagogies', *British Journal of Educational Technology*, 49 (5), pp. 803-806.

DOI: 10.1111/bjet.12676

Brito, R. et al. (2018) 'Young children, digital media and smart toys: How perceptions shape adoption and domestication', *British Journal of Educational Technology*, 49 (5), pp. 807-820.

DOI: 10.1111/bjet.12655

Chassiakos, Y.R. et al. (2016) 'Children and Adolescents and Digital Media', *American Academy of Pediatrics*, 138 (5), pp. e1-e18.

DOI: 10.1542/peds.2016-2593

Children using phone. Digital Image. *Lifhack*. (2020)

Available at: <https://www.lifhack.org/articles/lifestyle/5-reasons-why-you-should-always-yourself.html>

Accessed: 23rd February 2020.

Children's Commissioner for Wales (2020) UNCRC.

Available at: <https://www.childcomwales.org.uk/uncrc-childrens-rights/uncrc/>

Accessed: 24th February 2020.

Crompton, H. et al. (2018) 'Humanoid robots supporting children's learning in an early childhood setting', *British Journal of Educational Technology*, 49 (5), pp. 911-927.

DOI: 10.1111/bjet.12654

Danger Sign. Digital Image. *PNG Mart*. (2018)

Available at: www.pngmart.com/image/100251

Accessed: 24th February 2020.

Department for Education (2019) Teaching Online Safety in School

Douglas, H. et al. (1984) 'Effects of Computer Programming on Young Children's Cognition', *Journal of Educational Psychology*, 76 (6) pp. 1051-1068.

Gerbner, G. et al. (1994) 'Growing up with television: The cultivation perspective', in Bryant, J and Zillmann, D. (Ed.) *LEA's communication series. Media effects: Advances in theory and research*. Lawrence Erlbaum Associates, Inc.

Gibbons, A. (2015) 'Debating digital childhoods: Questions concerning technologies, economics and determinism', *Open review of Educational Research*, 2 (1), pp. 118-127. Available at: <https://doi.org/10.1080/23265507.2015.1015940> Accessed: 20th February 2020.

Goodson, I. (2003) *Professional Knowledge, Professional Lives*. Glasgow: McGraw-Hill.

Http. Digital Image. *Soft Power*. (2019)
Available at: <https://www.softpower.uk/tag/online-news/>
Accessed: 23rd February 2020.

Hutchison, A. et al. (2012) 'Exploring the Use of the iPad for Literacy Learning', *The Reading Teacher*, 66 (1) pp. 15-23

Internet Matters (2020) Online Safety Advice.
Available at: <https://www.internetmatters.org/advice/0-5/>
Accessed: 24th February 2020.

Johnston, K. et al. (2018) 'Supporting young children as digital citizens: The importance of shared understandings of technology to support integration in play-based learning', *British Journal of Educational Technology*, 49 (5) pp. 896-910.
DOI: 10.1111/bjet.12664

Liberman, D. A. et al. (2009) 'Young Children's Learning with Digital Media', *Computers in the Schools*, 26 pp. 271-283.
DOI: 10.1080/07380560903360194

Lynch, J. and Redpath, T. (2014) 'Smart technologies in early years literacy education: A meta-narrative of paradigmatic tensions in iPad use in an Australian preparatory classroom', *Journal of Early Childhood Literacy*, 14 (2) pp. 147-174.
DOI: 10.1177/1468798412453150

Malicious Communications Act (1988)
Available at: <http://www.legislation.gov.uk/ukpga/1998/27/contents>
Accessed: 22nd February 2020.

Neumann, M. (2016) 'Young children's use of touch screen tablets for writing and reading at home: Relationships with emergent literacy', *Computers and Education*, 79, pp. 61-68.
DOI: 10.1016/j.compedu.2016.02.013

Accessed: 25th February 2020.

NSPCC (2017) Every Child is Worth Fighting For

Available at: <https://www.nspcc.org.uk/what-we-do/news-opinion/social-media-age-limit/>

Accessed: 23rd February 2020.

NSPCC (2018) Ten Years Since The Byron Review

Available at: <https://learning.nspcc.org.uk/research-resources/2018/10-years-since-the-byron-review/>

Accessed: 24th February 2020.

NSPCC (2019) How safe are our children?

Available at: <https://learning.nspcc.org.uk/media/1747/how-safe-are-our-children-2019.pdf>

Accessed: 20th February 2020.

NSPCC (2019a) Protecting Children from Online Abuse

Available at: <https://learning.nspcc.org.uk/child-abuse-and-neglect/online-abuse/#heading-top>

Accessed: 23rd February 2020.

O'Connor, J. (2017) 'Under 3s and Technology', in Arnott, L. (Ed.) *Digital technologies and learning in the early years*. London: SAGE Publications Ltd.

Ofcom (2017) Children and Parents: Media Use and Attitudes Report.

Palaiologou, I. (2016) 'Children under five and digital technologies: implications for early years pedagogy', *European Early Childhood Education Research Journal*, 24 (1) pp. 5-24.

Available at: <http://dx.doi.org/10.1080/1350293X.2014.929876>

Accessed 20th February 2020.

Papert, S. (1980) *Mindstorms: Children, computers, and powerful ideas*. New York: Basic Books.

Revelle, G. L. (2013) 'Applying Developmental Theory and Research to the Creation of Educational Games', *New Directions for Child and Adolescent Development*, 139, pp. 31-40.

Available at: <https://doi.org/10.1002/cad.20029>

Accessed: 20th February 2020.

Rogow, F. (2015) 'Media Literacy in Early Childhood Education: Inquiry-Based Technology Integration', in Donohue, C. (Ed.) *Technology and Digital Media in the Early Years: Tools for Teaching and Learning*. New York and London: Routledge.

Sharapan, H. (2015) 'Technology as a Tool for Social-Emotional Development: What We Can Learn from Fred Rogers' Approach', in Donohue, C. (Ed.) *Technology and Digital Media in the Early Years: Tools for Teaching and Learning*. New York and London: Routledge.

Sigman, A. (2012) 'Time for a view on screen time', *Archives of Disease in Childhood*, 97 (11) pp. 935.

DOI: 10.1136/archdischild-2012-302196

Accessed: 21st February 2020.

Social Networking Sites. Digital Image. *Jamie*. (2019)

Available at: <https://makeawebsitehub.com/social-media-sites/>

Accessed: 24th February 2020.

Successful Futures (2015) Independent Review of Curriculum and Assessment Arrangements in Wales

The Communications Act (2003)

Available at: <http://www.legislation.gov.uk/ukpga/2003/21/contents>

Accessed: 22nd February 2020.

The Defamation Act (2013)

Available at: <http://www.legislation.gov.uk/ukpga/2013/26/contents/enacted>

Accessed: 22nd February 2020.

The Digital Economy Act (2017)

Available at: <http://www.legislation.gov.uk/ukpga/2017/30/contents/enacted>

Accessed: 22nd February 2020.

The National Literacy Trust (2016) The Use of Technology to Support Literacy in the Early Years in 2015.

Available at: <https://literacytrust.org.uk/research-services/research-reports/use-technology-support-literacy-early-years-2015-findings-our-third-annual-early-years-surveys-parents-and-early-years-practitioners/>

Accessed: 24th February 2020.

UK Government (2019) Safeguarding Children and Protecting Professionals in Early Years Settings: Online Safety Guidance for Practitioners.

Available at: <https://www.gov.uk/government/publications/safeguarding-children-and-protecting-professionals-in-early-years-settings-online-safety-considerations/safeguarding-children-and-protecting-professionals-in-early-years-settings-online-safety-guidance-for-practitioners#what-online-risks-might-children-in-early-years-settings-experience>

Accessed: 24th February 2020.

Welsh Government (2008) Digital Competence Framework.

<https://hwb.gov.wales/curriculum-for-wales-2008/digital-competence-framework-curriculum-for-wales-2008-version/>

Accessed: 19th February 2020.

Welsh Government (2015) Foundation Phase Framework.

Welsh Government (2015) Successful Futures.

Welsh Government (2020) Developing a vision for curriculum design
Available at: <https://hwb.gov.wales/curriculum-for-wales/designing-your-curriculum/developing-a-vision-for-curriculum-design/#curriculum-design-and-the-four-purposes>

Accessed 21st February 2020.

Welsh Government (2020b) Digital Competence Framework.

Welsh Government (2020c) Curriculum for Wales.