Practitioner Perspectives of technology use in early years settings.

Emma Harvey.

Thesis presented in partial fulfilment of the requirements of the University of East Anglia and the University of Suffolk for the degree of Doctor of Philosophy.

University of East Anglia
University of Suffolk
School of Education.
March 2023.

University of Suffolk

Declaration of originality

This thesis and the work to which it refers are the results of my own efforts. Any ideas, data, images, or text resulting from the work of others (whether published or unpublished) are fully identified as such within the work and attributed to their originator in the text, bibliography or in footnotes. This thesis has not been submitted in whole or in part for any other academic degree or professional qualification. I agree that the University has the right to submit my work to the plagiarism detection service TurnitinUK for originality checks. Whether or not drafts have been so-assessed, the University reserves the right to require an electronic version of the final document (as submitted) for assessment as above.

Signature:

Date: 10.03.2023

Total word count: 98,795.

Abstract.

Perspectives of early years practitioners in English preschools were the focus for this thesis. Particularly exploring the use technology in the EYP role, and how they support children to use technology. Originally, intending to explore how the removal of *technology* and *ICT* from the 2021 revised Early Years Foundation Stage (EYFS) framework would affect provision, data was collected during the national lockdowns of COVID-19, so practitioners also shared experiences of how the use of technology and digital media changed during this time, and how children's technology and digital media use in settings differed from pre lockdown.

To ensure data collection could continue during lockdowns, the original data collection method of focus groups changed to telephone interviews and online questionnaires that allowed 103 practitioners to share their views. However, despite a change in methods, a qualitative methodology remained.

Data suggests practitioners used digital media more during periods of lockdown, providing learning opportunities for children, meeting virtually with colleagues, and supporting parents. Children's technology and digital media use in settings also changed; due to policy guidance, sanitising equipment and keeping children in 'bubbles' meant sharing devices became more difficult.

Practitioners shared opinions and beliefs that children use technology too much at home, without considering whether children use technology for consumption or creation in these spaces. Further, practitioners often use technology with children to 'tick a box' for OFSTED without considering how these technologies can be woven into the classroom ecology to benefit all areas of learning and development as a tool for multimodal learning.

Recommendations for practice include working with qualification awarding organisations to ensure early years qualifications include some content on technology use, and the creation of a lead practitioner role (Digital Activity Lead Co-ordinator, or DALCo) who can champion and lead technology use in their setting.

Table of Contents.

List of tables.

List of diagrams.

List of images.

Acknowledgements.

I would like to thank the participants of this study for sharing their views and experiences during a particularly difficult time. Without their co-operation, I would not have been able to complete this research.

I would like to thank my supervisory team; Professor Emma Bond, Professor Andy Phippen, and Dr Paul Driscoll Evans for their continued support and encouragement, and for believing in me when I felt the dreaded imposter syndrome creeping in.

Thank you also to Dr Sarah Richards and Dr Jo Finch for being ‘critical friends’, and finally, thank you to my husband David, and my three sons Ryan, Nathan, and Aiden; your encouragement has meant the world.

Chapter 1 Introduction.

Early years practitioners in England have one of the most trusted jobs; to care for and educate the youngest children. Robbins and Callan (2009) argue the early years sector carries a social responsibility and ethic of care for the most vulnerable in our society. The term ‘early years practitioner’ (EYP) has evolved from ‘nursery nurse’, which was the term used to describe women who cared for children in hospitals, institutions, and homes (Whitters, 2017) until the end of the twentieth century.

The term nursery nurse is still used for those employed in hospitals to support medical staff care for children (NHS, 2022). However, towards the end of the twentieth century, researchers and educators recognised the need for a unique approach to caring for and educating young children under the age of five (Wall *et al,* 2015). The term early years practitioner is now recognised as more fitting the roles, responsibilities, and relationships (Whitters, 2017) involved in the job of caring for and educating children in their pre-school years (from birth, up to the age of formal schooling, which in England is the term before their fifth birthday).

EYPs are expected to have extensive knowledge of child development, so they can provide a stimulating and inclusive learning environment and identify areas where the child may need additional support. EYPs are expected to recognise how developments in neuroscience can help us understand behaviour, and the effects of adverse childhood experiences (ACEs) (Conkbayir, 2022).

The introduction of the key person system (originally promoted in 1985) (Elfer & Goldschmied, 2011) has led to the requirement of EYPs building strong relationships with parents and carers, to ensure they can support the child consistently, and support families in need. EYPs are expected to have an increased knowledge of special educational needs and disability (SEND) so they can identify additional support needs (Martin-Denham & Watts, 2019).

EYPs must also have an understanding and working knowledge of the Early Years Foundation Stage (EYFS) framework; the statutory framework that all settings registered with the Office for Standards in Education, Children's Services and Skills (OFSTED) must follow. The EYFS sets out the requirements for staff qualifications and training, and conduct of practitioners (DfE, 2021). The overarching principles of the EYFS are built upon an appreciation of the unique child, having positive relationships in enabling environments, with value placed on learning and development (DfE, 2021). The EYFS explicitly states that EYPs

have a fundamental role in supporting children learn and develop in these first five years (Kelly, 2015).

All OFSTED registered early years settings in England follow the EYFS. The term ‘early years setting’ encompasses a vast range of services (OFSTED, 2022). EYPs may work in their own home as a child minder. They may work alone, or have assistants, but the environment is home based. An EYP may work in a setting that is purpose built. These settings can be called pre-schools, private day nurseries, or kindergartens, all varying in size, and opening times (with some open for twelve hours per day), and usually separate children into age ranges (babies, toddlers, and pre-school). Other settings (often called preschools, playschools, or play groups) hire space in church halls, village halls, community centres. These settings (known in the sector as *pack away settings),* set up their furniture, equipment, and resources at the start of each day, and pack everything away at the end of the day, as their physical space is not for their sole use.

Settings are run by charities, church groups, children’s centres, large chains of nurseries or private owners. These settings are categorised as ‘private, voluntary and independent’ or PVI settings, as they are funded through parent fees, charitable donations, fundraising events, and partly funded by the early education and childcare fund from the Department for Education (through local authorities) (DfE, 2021). Other settings that use the EYFS are fully funded through local authorities (maintained settings). These are nurseries attached to primary schools, who offer sessions of 21/2 hours, and reception classes of schools. In all these types of settings, the EYP will be working within the framework of the EYFS.

Clearly, there are many variations in set up and funding for early years settings in England, and the structure of the setting can have implications for the services and provision that can be offered to children and their families, and for the EYPs that work there. Within this thesis, the term “early years setting” includes all these variations.

The terms ‘early years practitioner’ (EYP) and ‘early years educator’ (EYE) are used interchangeably in England to refer to an individual who works within one of these childcare settings. In this thesis, the term ‘early years practitioner’ relates to all those working within an OFSTED registered setting in England. For all EYPs, whether they have completed training in early years, and therefore classed as qualified, or whether they are training as an apprentice, or classed as unqualified, they will have undergone a period of employment induction, during which a level of vocational professionalism would have been outlined and explained (DfE, 2021). EYPs are expected to work professionally to uphold the policies of the setting and support children and families.

The term professional has shifted from being exclusive to those who work in medicine (Martimianakis *et a*l, 2009), and the law (Atkinson, 2013) to a more holistic view of how an individual in any occupation can use their professional expertise, to best support the service users (Fook, 2000). EYPs are considered professionals in the care and education of young children.

Brehm *et al* (2006) argue professionalism can be defined firstly, by the *professional parameters* in which the individual works. As discussed, the parameters for EYPs caring for children is partly due to their training that focusses specifically on caring for children under the age of five, and that children after the age of five enter formal schooling which falls under the parameters of teachers. The physical parameters of EYPs' working environments have been discussed, with several locations and structures falling under the term 'early years setting'.

Brehm *et al's* (2016) second defining classification for professionalism is *professional behaviours*. EYPs are expected to behave in a way that protects their own and other's safety, understand and follow their employer's codes of conduct and policies, including maintaining professional and appropriate relationships with children, parents, and colleagues, and having regard for confidentiality. EYPs are expected to care for, protect, and support learning and development of babies and children in their care.

Brehm et al's (2016) third defining classification for professionalism is *professional responsibilities*. These responsibilities include caring for a group of children, known in England as "key children". A key person is the point of contact for the child and family in the setting, and will get to know them well, usually performing the child's care routines and monitoring their learning and development. EYPs' key group responsibilities range from setting to setting. Some EYPs may have 2 or 3 key children, some may have 15.

A further responsibility is engaging in continued professional development (CPD) or professional learning to ensure their skills and knowledge remain current (DfE, 2021). If EYPs do not engage in CPD, they may not be offering children and their families the best service and may be practising using outdated pedagogies (Bradbury, 2022). CPD and professional learning are terms used interchangeably throughout this thesis to describe the act of undertaking post qualifying training, education, research, or reflection to improve one's knowledge, skills, or competence in early years practice.

Chalke (2013) discussed the frustration of these professional roles and responsibilities when, in the early years sector, boundaries and expectations change frequently. There is currently no set model or framework for CPD or professional learning for the early year sector in

England. Scotland have a model for professional learning (Education Scotland, 2019) that can be used by EYPs. In England, the *Teachers Professional Standards* include the requirement to complete 30 hours per year of professional learning (DfE, 2021). Days are planned into the academic year for teachers to complete this professional learning, named *In-service Education and Training* (INSET) days. Teachers have these days included in their salaried contract. Children do not attend school on these days, so teachers can complete their CPD and reflect on their practice (Twinkl, 2022). Unfortunately, there is no such system for early years, and although it is expected EYPs conduct professional learning, individuals or setting managers arrange CPD that is completed in addition to their contracted working hours. Professional learning in the early years sector is explored further in chapter 3. One of the areas that may be covered in professional learning or CPD is the use of digital media and technology in early years.

In this thesis I explore this aspect of the EYP role, and the training and professional learning available to support EYPs in using digital media and technology. The data in this thesis revealed digital media and technology use in early years practice has two strands. The first is how EYPs use digital media and technology to carry out the job of the early years practitioner. My respondents use digital media and technology in a multitude of ways as part of their role.

The table below shows the methods and devices reported during my research:

	Technology used.	Digital media produced, shared, consumed using this device.
Technology used in the administration of running the business	Laptop and desktop PCs	Communication via email (parents, team members, outside professionals, suppliers, professional bodies, NHS, local authority, OFSTED, MASH). Virtual meetings (Zoom, Teams etc) Creating, editing, and sharing tracking and monitoring records for children, staff, Local Authority, and parents. Examples of this are staff supervision records, cohort tracking sent to the local authority, SEND funding monitoring. Researching and creating resources, such as PECs cards, flash cards, colouring templates. Ordering supplies such as shopping, resources Checking business finance accounts and funds being paid by parents. Completing safeguarding concern forms.
	Telephone, either land line or mobile	Speaking with parents, colleagues, outside professionals, suppliers, maintenance workers, local authority, area leads, multi-agency safeguarding hub (MASH).
	Printer	Printing materials for children to use (templates, phonics activities, flash cards). Printing letters for parents, printing new starter packs.
	Digital camera/ tablet	Taking photos of the setting for marketing purposes or media articles

Technology used in the administration of monitoring, recording, and assessing children's progress and wellbeing	iPads/ tablets	Taking photos of children at play to record engagement in activities or WOW moments. Uploading photos onto online learning journeys. Editing nursery software to update care routines or children's activities so parents can follow their child's day to day activities and progress. Online risk assessment records update
	Digital camera	Taking photos of children at play to record engagement in activities or WOW moments. Uploading photos onto online learning journeys.
	Digital thermometers	To monitor children's temperature

Table 1. Technology and digital media used by EYPs in their job role.

The second strand revealed from the data is the practitioners' role in supporting children to use digital media and technology as part of their learning and play. Again, my respondents reported using a range of devices and tools with children in their early years settings:

Devices used.	Digital media these devices afford use of
Tablets/ iPads	Learning applications and games such as Hungry caterpillar play school, Elmo loves 123, reading eggs, monster maths. Taking photos inside the setting and outside in the garden, and of children's work Research (such as looking at patterns on a ladybug's back) Using Google to find out or research. Using YouTube to watch videos or find songs.

Digital cameras	Taking photos inside the setting and outside in the garden, and of children's work
Interactive whiteboard (IWB)	Games and apps for children to use. Music to accompany an activity. Short videos from YouTube
Light table/ box	Small objects, natural objects, beads, buttons, leaves etc placed on the table so children can explore. Shapes, patterns can be drawn on the table and followed with beads, string, wool etc
Programable toys (e.g Beebot)	Used to support early coding. These toys are used by programming them to move in different directions and for different amounts of time, or around a map or road drawing
Home hubs (e.g Alexa, echo dot)	Used in settings to play music or ask questions to support language development, EAD, (expressive art and design) PSED (personal, social and emotional development), UTW (understanding the world) and PD (physical development)
Stopwatch	Used in races, to help children understand about the heart, cooking,
iPod	Play music
Audio equipment (CD players, cassette players)	Play music
Kitchen equipment (scales, oven)	For cooking and baking
Relic items (old, unworking mobile phones, landline phones)	Often seen in role play areas, these are items of technology that no longer work but can be used for pretending and role play
Tech toys (such as Vtech electronic books, musical toys)	Electronic books and musical toys have lights and sounds that are designed to engage young children, and often support learning of core skills such as numeracy and literacy. Children can play with these independently, or with an adult.

Table 2. Technology and digital media used by EYPs with children.

These two strands are explored further in the findings chapters, to illustrate their significance. The first strand (EYPs use of technology to carry out day to day duties in the business of childcare) is vital to communicate, meet and share data to colleagues, parents, and outside professionals. The second strand (supporting children to use technology) is also vital, to ensure children are receiving standardised experiences, introducing them to our technological world. The outcomes of this thesis include recommendations of integrating more education on these topics into EYP qualifications, and the introduction of a DALCo role, both these strands of technology use need to be included in the recommendations.

1.1 Defining Technology.

The term technology has a vast scope for meaning. The Britannica dictionary defines technology as the “application of scientific knowledge to the practical aims of human life or, as it is sometimes phrased, to the change and manipulation of the human environment” (Britannica, 2022). The Collins definition is “methods, systems, and devices which are the result of scientific knowledge being used for practical purposes” (Collins, 2022). Nye (2007) defines technology as unique to humans, created in a bid to enhance their lives, and make jobs easier.

Technology can be traced back millions of years, with the adaption of natural objects such as sticks and stone to make tools. As humanity has advanced, so has the technology they create (Nye, 2007). The word *technology* comes from the ancient Greek root, techné, meaning belonging to the arts, crafts, or skill. It has also been associated with know-how, and the art of doing things (Rooney, 1997). The second part of the word relates to the Greek suffix *logia*, which roughly translates to an understanding of, or branch of knowledge (Tulley, 2008). Therefore, technology is more than machines (Teich, 1997), it is about developing, knowing about, and understanding processes and practices, and the use of devices that make life easier. The idea that technology is more than machines, that it is also about human knowledge, and practices passed from person to person was discussed by Goyder (1997) as having a cultural component. One that relates to the person’s location; their familial and friendship groups; the time they lived; all of these will affect what technology they experience and learn about.

Digital media is another term that can be difficult to contextualise. Boulianne & Theocharis (2018) define digital media as technologies that connect to the internet. Snyder (2023) describes digital media as information shared through a digital device or screen; any form of

media that relies on an electronic device for its creation, distribution, viewing, and storage. Using these definitions of technology and digital media, tables 1 and 2 above, show the devices included in this thesis (the technological machines or devices) and digital media (information shared through these digital devices) can be defined as *technology* and *digital media*. In this thesis, the term *technology* is used to refer collectively to these devices and digital media.

Most children living in England today have a technology rich world (DfE, 2020). Children are exposed to technology in their homes, in their learning environment, and the world around them. This is advantageous when the child is exposed to new devices or programmes, as they can explore and experiment without fear. Prensky (2001) labelled this fundamental change in how children's and young people's lives incorporate technology with the term *digital natives*; "*Our students today are all native speakers of the digital language of computers, video games and the internet*" (Prensky, 2001, p. 1).

Although Prensky's description related to older children and young adults, it helped highlight the fundamental difference in how *digital natives* and *digital immigrants* (adults who have had to learn the language of the digital world) are able (usually) to incorporate technology into their lives. The term has supported discourse that highlights changes to preferred learning styles.

However, the term *digital native* has been criticised as being too broad a term to describe all children born after a certain year. A term that assumes all children can use technology simply based on their year of birth (Kirschner & DeBruyckere, 2017). That these children inherently possess the necessary skills to simply pick up a tablet and use it efficiently. This definition fails to acknowledge sociocultural differences. Children's abilities and levels of skill will vary vastly, depending on their social learning environments, and whether technology is readily available to them. Further, children may have increased exposure to technology, and therefore more opportunity to explore and master skills (ECDL, 2014), however, this does not mean children and young people are able to use technology safely and for a range of purposes.

The 2014 European Horizon report highlighted less than half of the school age students within studies in Italy, Austria and Canada had digital skills that would be classified as adequate, when examining areas such as online safety, and the application of ICT skills for creation rather than consumption (Johnson *et al*. 2014). Further, the report highlighted the variations in children and young people's level of skill for using technology in the workplace or educational setting, and for leisure. Both points suggest, although children and young people born in the digital age have (generally speaking) more access to technology, this does not equate to an ability to naturally use technology for creative and collaborative purposes, and the ability to use technology safely, with a consideration of their digital footprint, or their digital reputation

(UNICEF, 2017). I argue that to develop these skills, some teaching, mentoring, or social learning is needed. In this thesis I explored the experiences, views, and perspectives of early years practitioners, how they feel about the responsibility of being the gatekeeper and teacher to young children who are exploring technology, and how they use technology themselves as part of the process of caring for children.

The use of technology in early years settings is varied. During twelve years as an EYP tutor and assessor I have visited many settings in East Anglia. I have seen settings where children have access to a wide variety of devices such as tablets, light boxes, interactive white boards (IWBs), torches, magnifiers, music devices, programmable toys. I have also seen settings where children have access to no technology, other than an old mobile phone in the role play area, or technology that is hidden away in a cupboard and rarely used. I wanted to explore the reasons for practitioners and managers decisions on how much technology they incorporate into their pedagogy, and when the changes to the EYFS were made public. I believed it would be an ideal time to research this, to investigate how EYPs felt the changes to the EYFS may affect their practices in using technology with their key children.

The EYFS was first published for use by all OFSTED registered early years settings in 2008 and has been revised several times. The latest version was released in 2021. At each publication, there was inclusion of technology use in the framework, to help EYPs understand how they could embed technology into their curriculum. The 2021 framework saw technology removed from all sections of the statutory document. This led me to question how EYPs may change their practice if technology was no longer part of the Early Learning Goal *Understanding the World*. I wondered whether removing technology from the EYFS may reduce children's early experiences of technology use, increasing inequality of early education. This may contribute to the widening attainment gap for children from disadvantaged backgrounds (Johnes & Hutchinson, 2016) whose early experiences of technology use outside of their educational setting (for example, their experiences of technology use in their home environment) may be varied, scarce (Learning Hive, 2022) or not always positive or constructive (Espinosa *et al*, 2010; Hosokawa & Katsura, 2018).

Selwyn (2017) argues that when thinking about technology in education, either in primary, secondary, or early years, we should not be looking at the devices, tools, and machinery *per se*, but the practices and activities around them. The previous versions of the EYFS had some guidance for EYPs on what types of devices and tools may be classed as *technology* and appropriate for each age range, and how EYPs may introduce these into different areas of the setting. For example, the use of cooking equipment such as an oven, scales, and a timer during supervised baking, but toy cooking equipment in the role play area (DfE, 2008).

Goyder (1997) described technology use as having a cultural component. This means, early years settings in England in 2022 may have very different technology provision to a setting in 2008. Further, settings in England may have different technology provision to settings globally (Selwyn, 2012; Rasinen, 2003). In this thesis I examined the EYFS from its first publication in 2008, to the newest edition published in 2021 to discuss how EYPs have been guided in using technology. The data collected from EYPs on this subject gives an insight into how EYPs are currently using technology in the learning environment, and how they plan to change or continue this provision in the future. There is evidence to suggest that provision is dependent on several factors that are socially constructed by EYPs views, experiences and opinions of children using technology.

Building on this cultural and social component of technology, I utilised a social constructivist theoretical standpoint to understand participants' views and perspectives. A social constructionist perspective investigates the social influences on communal and individual life (Galbin, 2014). It does not assume (as with essentialism), items such as tablets and iPads have any value or use on their own, without humans giving them purpose (Palmer, 2016). Therefore, the devices and media included in this thesis have meaning and purpose, based on how the individual and group (for example an early years setting) use them for particular purposes. Further, to distinguish between constructionist and constructivist standpoints, where social construction of reality is thought of as knowledge and meaning historically and culturally being constructed through social processes and action (Young & Collin, 2004), and constructivism recognising how the individual "cognitively engages in the construction of knowledge from social construction" (Young & Collin, 2004 p. 373), in this thesis I acknowledge that practitioners are constructing their own reality of technology use, based on the social constructs of their world (namely, their education, media, employment constraints, motivation).

Although, there is a social construct around technology use that is built upon English culture, heritage, and economy, EYPs also have agency to develop their knowledge and understanding of technology use in their professional capacity, and this is the focus of this thesis. EYPs have unique experiences of using technology in their private and professional lives and exploring these can help to understand how some of these experiences and views may influence their practice, which affects children's experiences in their early years journey.

To examine these social constructs in a manner that captured the instability of the early years sector at the time of data collection (during the period of 2020 and 2021), I employed an Actor-Network Theory (ANT) lens to contextualise the practitioners' experiences, examining the influencing factors that guided decisions about offering technology in provision. Actor- Network Theory (ANT) was pioneered by Callon (1986) and Latour (1987) whilst working within the

sociology of science (Walsham, 1997). Later developments of ANT are considered a strand of the wider school of thought on the social construction of technology (Walsham, 1997).

ANT helped to analyse the capricious networks that surrounded EYPs practice at this time. An advantage of using an ANT lens is this approach has developed from the sociology of technology to examine human and non-human objects and practices (particularly the social and the technical) as inextricable and argues that 'people and artefacts should be analysed with the same conceptual apparatus' (Walsham, 1997 p.467). Latour (1996) describes the social and the technical as two monstrous hybrids that are 'now coextensive' (p.302). ANT acknowledges the constant state of flux that exists between human and non-human actants, and the flexibility and unstable nature of the links within the network. This allowed me to examine how various events of 2020 and 2021 affected practice in the early years sector at this unstable time.

The instability of the early years sector during 2020 and 2021 was the result of two events. The revision of the Early Years Foundation Stage (EYFS) framework, 2021, which was revised to reduce practitioner workload, and reduce inequalities of children's language and literacy attainment (EYA, 2021). The revised framework was released for national use in September 2021. This followed two years of trials and consultations. As discussed earlier, the removal of technology from the 2021 EYFS was the catalyst for this research, as I wanted to understand how EYPs felt about the removal of technology, and *why* they felt it was either a positive or negative change.

The second event was the global pandemic caused by the COVID-19 virus which saw 18 months of national lockdowns in England, restrictions to education, school closures for most children, only open to care for children of key workers, so these parents could continue working (Gaunt, 2020). These restrictions meant that many children spent 18 months learning at home. However, early years settings were told to remain open, as the Government believed the youngest children still needed the environment of the early years settings to learn and develop, and the spread of COVID-19 was low amongst pre-school age children (Jawad, 2021). EYPs were forced to continue working in settings throughout the lockdowns of COVID-19 (Gaunt, 2021).

Strict guidance for how settings offered their services was issued during the pandemic. Guidance on grouping children into bubbles to reduce contact with others, changing usual opening times, the removal of some provision, guidance on cleaning and infection control all changed practice considerably during this time (OFSTED, 2020). Due to the unique timing of the research, I was able to explore how practitioners' perception of these events changed the early years sector, and specifically, how technology was utilised. The research aimed to:

1. Explore practitioners' perspectives of the use of technology by children aged 0-5.
2. Examine practitioners' experiences of training and qualifications in early years and how these prepare practitioners to use technology.
3. Investigate practitioners' experiences of using technology during the COVID-19 pandemic.
4. Examine practitioners' views and opinions of the changes to the EYFS framework in 2021, and how these views may affect the use of technology in early years settings.

There are many studies available that give statistical data on the amount of screen time children have (Smahel *et al*. 2020; Marsh *et al*. 2015), along with considerable media and public discourse about the effects screen time has on children. There is also an increasing body of work on the children's activities using technology (Marsh *et al*. 2018; Parry, 2018; Plowman *et al*. 2011). Many studies have explored children's views on their use of technology (albeit with a focus on older age ranges) (Sanitaria, 2021; OFCOM, 2021). This study differed because it gave a voice to those caring for the youngest children in society. Although it is important that children's voices and stories are heard when investigating children's lived experiences, and their voices are of huge value on this topic, this thesis was born from my twelve years of being an EYP and a further twelve years tutoring and assessing EYP students and apprentices in early years settings as part of my day job therefore, my focus was to give practitioners a voice.

Further, as data collection was carried out during COVID-19 pandemic lockdowns, it would have been extremely difficult to gather data from young children during this period. Data collection became difficult, even working with adults. EYPs were becoming exhausted from the emotional effects of the pandemic, and the anxiety of putting themselves and their families at risk of infection. They were covering sick and isolating colleagues; they were becoming ill themselves. During data collection, I had to change methods twice, to accommodate the needs of participants during this challenging time, but due to the use of technology I was able to continue field work during the lockdown period. This was a learning curve for me and highlighted how much we relied on technology during this time.

I wanted to explore whether EYPs feel their early years training gave them enough grounding to support children's use of technology, and whether they feel confident to use technology as part of their role. The findings of the study highlight that although many practitioners feel confident in using technology; this confidence comes from acquiring self-taught skills. There is a lack of formal training for practitioners in how technology can be used in their role as early

years practitioner, and how to introduce technology into the classroom ecology, embedding technology into existing pedagogies to achieve a multimodal learning environment. Further, there is also a lack of post qualifying continued professional development (CPD) available on the use of technology. From this, I set out implications for practice and recommendations to highlight this issue to awarding organisations who create qualifications, in a bid to improve training for practitioners, which will in turn improve the experiences and outcomes for children.

This thesis has already affected future early years training on a national level, with the creation of a new short, CPD course, aimed at digital activity lead co-ordinators (DALCos) in early years settings, and further developments to incorporate the topic into larger national qualifications are underway. These changes are being made in conjunction with one of the leading awarding organisations in England.

This thesis offers some valuable contributions to the existing research in this field. Due to the timing of data collection, the insights into practice in early years settings during the COVID-19 pandemic highlights how technology was a prominent factor in maintaining the business of childcare through periods of lockdown and isolation. Practitioners' accounts of how they continued to educate children and maintain contact with families, colleagues, and other professionals using technology has not yet been widely researched. OFSTED's 2022 report on the mission of recovery post COVID-19 touched upon this matter (OFSTED, 2022), although the voices of practitioners were not heard. Further, practitioners' views on how the changes to the EYFS may change technology provision is not yet widely available. Due to the timing of my PhD journey, I was able to gain valuable insights into this topic, again making this research highly valuable.

Although methodologically, this research does not offer any new ways of collecting data, it does illustrate how a global pandemic forced me as a researcher to be reflexive, reactive, and adaptable, to navigate the fast-changing guidelines on face-to-face contact, and how to continue when participants were flagging due to exhaustion at work. The methods applied were not originally planned, but to enable continuation of data collection, adaptions were made. What is unique, is how an ANT lens has been applied to early years education in a considerably turbulent period in history; highlighting how the networks around a practitioner or early years setting influence decisions about whether to use technology, and how these change from one day to another. There have been applications of ANT to education. Stirling & Selwyn (2018) examined the use of social media and ANT in education. Fenwick & Edwards (2010) apply ANT in general educational situations. Burnett (2010) applied ANT to early years literacy and technology, and Moberg (2017) applied ANT to Swedish early years education (in

general). However, ANT as a lens to describe the actants in networks during a global pandemic and changes to the early years framework is a novel and useful concept.

1.2 Organisation of the thesis.

The literature review spans three chapters. Chapter two examines, and analyses existing literature associated with the education system in England since the introduction of a formal curriculum for early years education in 2000. I argue that education is socially constructed and viewed as preparation of children for the adult world and employment, and children's use of technology is a part of this. To focus on early years childcare and education (EYCE), chapter three examines the English early years framework for care and education (the EYFS), and how technology use was included in the framework from the creation of the EYFS in 2008 to the latest edition released in 2021. As the focus of this thesis was the voice of the practitioner, chapter four examines the small amount of existing literature on the perspectives and experiences of teachers and practitioners who work with children under the age of five. Findings from research like mine is examined, and the areas where research is lacking are identified to situate my findings in the landscape of research into technology use with this age range, giving value to this thesis.

In chapter five I outline the methodology, research methods, ethical considerations, and data analysis methods used within the study. I explain how these were chosen to fit the research aims, and examine alternative methodologies and methods, explaining why these were not suitable. I explain my position as an advocate for balanced, constructive use of technology in early years. I also outline how through mapping my position as a researcher, former EYP, tutor of trainee EYPs, and mother to three children who have been born into a technology rich environment, I bring to this research values, opinions and experiences that have enhanced the planning and implementation of the research and analysis of the data. I explain how, through reflection and reflexive practice I was able to use these attributes to recruit participants, use methodologies that would realise my aims, and place my findings into the wider landscape of literature. I was also able to make recommendations that are having a positive impact for the early years sector.

In chapters six to eight I present the findings of this study. During data analysis, factors that influence the use of technology within the role of the practitioner naturally emerged in three themes: political factors, professional factors, and personal factors. Chapters Six, seven and eight present the findings categorised by these three themes. To complete the thesis, in chapter nine I outline implications for practice and recommendations. There are also

validations of the recommendations, and a discussion about how the recommendations are currently progressing.

Chapter 2 Literature review.
Education as a Social Construction

2.1 Introduction.

In this chapter I examine how the socio-political landscape of English government legislation contributes to the construction of the lives and education of young children. Families with young children are affected by these socio-political factors, as famillies often rely on Government institutions, such as state benefits, the National Health Service (NHS), introduced in 1948, catering for all maternal and paediatric health needs (Tweddle, 2008), school places, and subsidised nursery places. Since the implementation of the Education Act of 1944, most schools (especially until the introduction of free schools and academies) have been funded by central Government through local authorities, and therefore under their control (Gillard, 2018).

For the purpose of this thesis, I examine the education system (particularly early years) since the introduction of formal early years frameworks in 2000. I focus on how the English education system is designed to fit the needs of society. Education has always prepared children and young people for their future. Durkheim wrote in 1911 that “every society, considered at a given moment in its development, has a system of education which is imposed on individuals” (p.1), and this education system is designed to create homogeneity between its members, turning *individual beings* into *social beings*, and imprinting social expectations onto them. This is apparent in the promotion of *Fundamental British Values* which are enshrined in the 2021 EYFS. Daily practice promotes democracy, rule of law, individual liberty and mutual respect and tolerance of those with different faiths and beliefs (Hutchin, 2022).

The other function of education is to prepare students for their place in society and employment. I argue that our post-industrial age education system has not evolved to adequately prepare children and young people for the new duties of working life. Senge (2018) argues that the current education system is “at odds with the reality and results in disengaged teachers and students. We must also take the standpoint of the society to understand the problems generated by the present system” (p.1). as Dewey (1897) said, education is the fundamental method of social progress and reform. In this chapter I also introduce Actor-Network theory (ANT) as a tool to examine the constructs and systems described earlier, which surround the young child and family, and how these systems are affected by events such as

changes in legislation and global events such as COVID-19. I explain how ANT will be applied throughout the data analysis chapters. In linking the systems and structures surrounding the child and family, it is also possible to examine the changes in the role of the EYP, as the expectations of the role are to meet the changing needs of the child and their family.

My scholastic literature review (Hart, 2018) aim was to develop my understanding of the existing literature on the role of EYPs and the early years environment. The intention was not to create new theories based on what already exists (as with a generative review), but to support, and build upon existing work (taking a verificationist approach) (Hart, 2018).

My literature review followed a similar process to that described by Cooper & Hedges (1993):

1. Develop a search vocabulary which will locate potentially relevant research and literature,
2. Develop a method for extracting, summarising, synthesising, and storing evidence,
3. Locate relevant literature and evaluate the methodological validity,
4. Abstract and synthesise relevant material, concepts, arguments,
5. Map these out into main themes, arguments, questions,
6. Draw conclusions about the literature within the themes, arguments, questions.

I carried out the literature review by revisiting the initial research proposal to confirm the research aims. I began a preliminary search of published, literature, grey literature, and Policy, searching key terms and phrases, including ‘early years education technology’ ‘early years practitioner technology’ ‘early years teacher technology’ and ‘early years technology’ utilising the University of Suffolk databases, e-journals, and e-books. I also utilised my own library of books and borrowed some more difficult to source books from my supervisors. The search included peer-reviewed, English language works (Miller *et al*. 2012). A sorting process allowed me to store the most relevant literature into themes; ‘technology use at home’, ‘technology use in settings’ ‘practitioner perspectives’ ‘reports and legislation’ ‘similar theses’ ‘similar methodologies’ ‘early years curriculum’ ‘pedagogies’. Relevant literature was stored on Google drive in themed folders.

From reviewing this stored literature, a snowball literature review process (cited work in the original literature used as a gateway) (Evans *et al.* 2014) allowed me to review a wider range of literature. Alerts from the University databases were set up, allowing notifications of new literature as it was published during the four years of my study programme. I utilised social

media platforms such as Facebook, Twitter, and LinkedIn to engage with and follow academics and industry experts to access their most current work. This allowed me to receive alerts to conferences, webinars, virtual meets, and publications. I also follow literature published by special interest group members from DigilitEY WG2: Digital literacy in early years settings, schools, and informal learning spaces, and EECERA SIG Digital Childhoods, Multimodality and STEM.

The literature review process was not a systematic review. Although I had chosen a search vocabulary, there was not pre-specified eligibility criteria, nor a systematic search strategy (Kysh, 2018). Further, the process did not involve criteria that would eliminate literature from my review (as is necessary when reviewing medical literature) (Gough *et al.* 2012). My literature review does not claim to have reviewed every piece of literature relevant to the topic (as is necessary with a systematic review for medical research purposes). The literature reviewed in this thesis centres around prominent academics in early years education and technology use, and recent studies that have similar research questions and aims. The justification for these methods is that the topic of technology use is fast paced, with increasing interest from educators and policy makers. Those who seek clarification look to reports from organisations such as EU Kids Online, TACTYC, EECERA, and the Digital Futures Commission. These reports are written by the most prominent academics in the field, so research from these individuals must be viewed as the most valid and reliable sources.

As Paulus *et al* (2014) explain, if we have a problem to solve, or a question to answer, we draw upon our friends or experts' social capital for advice and guidance. This is the purpose of a literature review; to search what others (who may have more knowledge and experience) have written; to see if questions have already been answered, and to see if there are any identifiable gaps in the current body of research which can direct our own project. In reviewing the literature already published, I have been guided to the areas I feel would benefit from further investigation, particularly for the English pre compulsory school age range of children, and the professionals who care for them in OFSTED registered settings.

2.2 New Labour's impact on society, the family and childhood.

There have been significant changes in the care and education of young children in England in the last twenty years. Many of these changes are directly linked to government Policy. When New Labour entered office in 1997, they increased public spending on benefits that affected the outcomes for children (Moss, 2014), including maternity benefits, and family benefits for parents in and out of work. Sure-start Centres, and free early years places for three- and four-

year-olds were introduced, and in 2004 this entitlement also included disadvantaged two-year olds. During this period, child poverty figures fell (Magadi & Middleton, 2007) and there were measurable improvements in children's health, behaviour, and outcomes (Stewart, 2013). The reduction of child poverty was welcomed; however, it is not possible to link causality with the introduction of free nursery places. In 2022 these funded preschool places are still available to children aged 2 from disadvantaged backgrounds, and all three- and four-year-olds, yet currently child poverty figures are rising (CPAG, 2021); partly due to the impact of the COVID-19 pandemic (Taylor, 2021), so other factors contribute to child poverty, not just whether they are able to attend funded preschool sessions.

New Labour launched the National Childcare Strategy (NCS) in 1998. This was a key investment in the early years sector, with an aim of ensuring good quality provision, affordable and in every neighbourhood. This was to address the issue of work life balance, particularly of women who were increasingly contributing to the labour market in paid employment. The other determinant of this policy were serious case reviews following high profile cases of child abuse, cruelty, and death (Nutbrown *et al.* 2008). The strategy, therefore, aimed to protect children from harm, and provide settings which would offer high quality care, and "shared care" of children between parents and early years settings whilst parents were able to work.

In 2004 '*Choices for parents, the best start for children. A ten-year strategy*' focussed on parents, particularly mothers returning to work, and support put in place to assist this. This ten-year scheme saw spending on early years provision increase four-fold (Stewart, 2015). There were also elements that focussed on families living in socially and economically deprived areas of the country (Nutbrown *et al*. 2008). The circumstances of families and the early years education system in the late 1990s and early 2000s was directly related to and constructed through New Labour's Policy and changing socioeconomic conditions; as Dag *et al* (2015) state, "not only do the changes and transformations in the political arena influence and determine educational processes but also educational processes influence and determine political culture" (p.1881).

Changes in the workforce, and an attempt to move more adults into employment, retraining or higher education (Anderson, 2016) required changes to early years care and education to allow parents to get into work or education, meaning the early years sector needed to change its approach. Many parents were encouraged to enter the workforce or retrain, in a bid to improve the stagnant employment figures. This meant childcare providers had to change their provision again, to cater for increased numbers of children attending their setting. Nurseries opened for longer hours, offering breakfasts and evening meals, to ensure children could be cared for while their parents worked longer hours or shift work. Children's Centres in the most

deprived areas had to offer care and education for five days per week for 10 hours per day, for 48 weeks of the year (Moss, 2014). EYPs were working longer shifts, and there was increased focus on education of children to reduce gaps in children's development, in line with the *Every Child Matters* (2004) initiative (DfE, 2004). The age of children attending settings got younger, so training was updated to include the care of babies (Jeffries, 2004), and with the demand for supporting diverse needs of families, further training on SEND and child protection was required (Hallett, 2012). The role of nursery nurse gradually became more of a support for whole the family unit, particularly for families who were suffering from poverty (Early Education, 2020).

In line with availability of free places, and the desire to reach and support children from the lowest income families, New Labour introduced a new early years framework; *Desirable Outcomes for Children's Learning on Entering Compulsory Education* (SCAA, 1996), revised as *Early Learning Goals* (QCA, 2000). These frameworks were goal orientated (Kwon, 1999), specifying developmental goals a child should reach by age of five. These goals are still in place in the early years framework today. Since *Desirable Outcomes,* early years education has become an issue on the national Policy agenda (Kwon, 1999), with many changes to Policy, curriculum, and funding. The culmination of which is the Early Years Foundation Stage curriculum used in all OFSTED registered settings in England today (EYA, 2019). The evolution of the EYFS is discussed in detail in chapter 3.

In 2008 the UK suffered a financial crisis (Bernanke, 2018) where families with children began to feel financial strain. According to Osborne (2011) the cost of childcare for a child under two in 2011 was £729 per month, often higher than a mortgage. This cost left families with very little disposable income, affecting their ability to spend money on family time and activities (Nutkins *et al*. 2013). Further issues such as family separation, child maintenance payments and the cost of supporting a two-home family after a family breakdown meant families who required childcare at this time often struggled to pay their bills. There was little incentive for both parents to work, although sometimes there was no other option.

Woodhead *et al* (2014) linked social inequalities of a child at birth and in early childhood to their outcomes later in life. The family dynamics of parents living together, learning opportunities provided by the family, numbers of siblings, early education, and social constructs of the child's life impact on their opportunities throughout childhood and adolescence, and subsequently affect the likelihood of them continuing into further and higher education, therefore impacting on their employment and life chances (Currie & Goodman, 2020). Social inequalities are repeated from one generation to another, which affects society (Nutkins *et al.* 2013). As discussed, Government initiatives appear to have improved the life

chances of children over the last twenty years, but there is much more to do, especially after the effects of COVID-19 lockdowns, which amplified inequalities of health, food shortage, educational opportunities, and housing (Whitehead *et al*, 2021).

Studies comparing the UK's welfare model to other countries in the early part of the 21st Century revealed stark differences in the outcomes for children (Nutkins *et al*, 2013). In Scandinavian countries, a *Nordic model* sees higher taxes collected as a means of redistributing wealth (Frelle-Petersen et al, 2020). Taxes are spent on pre-natal care, early childhood education, schools, and healthcare, giving children more equal opportunities to be healthy, learn and thrive, giving them equal chances to succeed as older children, adolescents, and adults (Andersen *et al.* 2007). The improved life chances not only benefit individuals, but society in general (McWhinney, 2022). This method of support helps families to ensure their children can access good education, food, shelter, and healthcare, reducing the risk of the continuous cycle of poverty (Lundahl, 2016).

The Conservative government that took power in 2010 (in a coalition with Liberal Democrats) implemented austerity measures to reduce public spending, resulting in cutbacks to education spending (IFS, 2022). Other measures included the marketisation of education, including the academisation of schools, the introduction of free schools and an increase in university tuition fees (O'Malley, 2018). In an attempt to reduce inequalities, the pupil premium was introduced (Gov.UK, 2010), although in 2015, the government admitted that the pupil premium had not improved attainment at GCSE level (Treadaway, 2015).

2.3 The Conservative Party.

The Conservative party is currently still in government and continue to privatise education and minimise spending (Mason, 2022). The results are evident, not less in the early years sector, with a lack of funding for settings. Between 2010/11 and 2020/21, investment in early years support by local authorities fell from £3.8 billion to £1.9 billion (Norris, 2022) leaving practitioners on low pay, and a lack of funds to provide resources and training. This reduction of funds in the early years sector is reported by the Early Years Alliance (EYA) (2022) who found EYPs are funding additional SEND support from their own pockets. Funding reductions also result in consequences for quality staff retention (Bonetti, 2022) and having insufficient resources to recover from the effects of COVID-19 (Morton, 2022). Increasing levels of children with EAL and SEND are not being matched with additional funding to increase staffing levels and fund, and staff CPD (Gaunt, 2022).

All of these problems result in children who are entering formal schooling with less physical, social, and academic ability than ever before (Lawler, 2022). EYPs report wanting more funds for training and CPD to meet the needs of children and their families:

"*Continuing Professional Development (CPD), which follows on from initial training, needs to be a requirement for all staff throughout their careers and be properly funded. Our survey showed that staff highly value CPD but face many barriers to accessing it"* (Early Years Workforce Commission, 2021 p.23).

Further, McGrath (2022) reports that funding for the sector is likely to get worse over the next two years. Although the budget for early years has been set for £3.75 billion a year, in real terms, this will be absorbed with climbing inflation (McGrath, 2022) the changes to the national living wage (Bonetti, 2022), and increasing utility bills with no support for businesses (Oxtoby, 2023). With all these challenges in the sector, EYPs are under continuous pressure to evolve their practice to meet the needs of children and their families.

2.4 An education system to fit the needs of Society.

As outlined earlier, adjustments within the education system over the last twenty years are a direct result of mandates upon early years settings, schools, colleges, and universities by government, and are guided by the sociocultural contexts of the country at the time. As the country and its population changes and evolves, so does the education system (theoretically), both as a means of educating the next generation to fulfil roles within society, and as a form of care for children whilst their parents worked; continuing to evolve around its community, reflecting the changes in our country.

In industry, there have always been layers of employment requiring different skills. From manual labour, often on a production line which required the ability to carry out sequential, manual tasks without questioning the protocols of the production line (Lambert, 2021). At the top of the scale are jobs which require higher order thinking, problem solving skills, critical analysis skills, memory, decision making ability, cognitive power (Heath, 2017). However, since the rise in technology many of the production-based jobs have decreased, with machinery now completing many of these tasks, and many production tasks transferring to developing countries to reduce costs, there has been a shift in employment trends. There are less opportunities for production line roles, and for those who would traditionally have filled these positions, finding employment can be difficult (Manyika *et al*, 2017). Many jobs require higher order thinking. Medicine, education, and law are regulated, depending on the profession.

There are now however, emerging opportunities which require creative, innovative, and collaborative working, in marketing, representation, and of course, media (Senge, 2018).

These roles are new to the labour landscape in England in terms of the history of employment, and working conditions are different to traditional office or factory bases. Often work is completed from home, or varied settings, via virtual or remote meetings, demonstrating changes to the employment structure of England (Deering, 2016). Over the last few years, the COVID-19 pandemic, and national lockdowns where everyone was advised to stay at home and *work from home if you can,* highlighted how many of us were indeed able to work from home, with the help of technology and the internet (Heath, 2017). To continue with the trend of education preparing the adults of tomorrow to fulfil roles such as these, it would seem beneficial, that the education system adapts to allow children and young people to train to fill these newly emerging job roles, and develop the skills required to work in these collaborative and dynamic ways, but also to operate and master the technology required to work in these industries (Senge, 2018).

The methods of teaching, learning and assessment in the English education system have not evolved as quickly as other aspects of society. When one considers how children are grouped, taught, and assessed in traditional, maintained schools, the systems of children's education remain very similar to the schooling of the previous century. Goleman (1996), cited in (Nutkins *et al*. 2013) discussed how although people spend more time using technology, employers report new employees lack the basic skills needed to work in the technological world. It appears that the school systems are not yet equipping young people for the industries of the 21st century, with school systems still working with educational ideologies of the 19th Century (Senge, 2018; Baker, 2009) Goleman (1996) states we cannot continue to educate with outdated methods simply because this is *the way it has always been*. Education systems designed to prepare young people to work machinery during the industrial revolution is not sufficient to equip new employees for the roles associated with the internet, ever changing hardware and software, and skills such as collaboration, problem solving and critical thinking (Senge, 2018).

According to Broadfoot (2002) the classroom and *book-based* model of education, currently our national curriculum, where children are split according to age, taught to defined curricula, which is updated not year by year, but often going decades without revision, examinations, and assessment according to set targets based on chronological age, does not equip people to work in today's industries. Broadfoot (2002) calls for a revision of this model to accommodate how the world of work is today, working remotely, collaborating with people in different countries or continents, variable working patterns, changing locations, frequent

equipment, and technology updates, and virtual, rather than physical products of work. Work is autonomous, and employees must be reflective of their own performance. All these skills require preparation at school level (Nutkins *et al.* 2013), even at early years level.

Young people experienced hybrid, distance, online and flexible learning during recent COVID-19 lockdowns where children spent their schooling hours differently. Most were at home, learning remotely, completing asynchronous activities set by their teacher, or engaging in live, online lessons in applications such as Google classroom, Teams, and Tapestry (Barron *et al*, 2021). The skills required to set up, join, and engage in these sessions are some of the skills mentioned earlier. Skills such as learning to manage the problems associated with live, online learning such as being presentable for learning, even when you are sitting in your living room at home, managing one's environment. ensuring the room was suitable for sharing with the class if you were allowing live camera, and time.

Further skills such as navigating learning in a household who may have to share devices to ensure everyone can join in their class learning, motivating oneself to complete tasks without being watched over by a teacher who is physically with you. Managing internet connection issues and remembering to charge devices so they are ready for a remote session. Being an independent learner. Managing times of isolation and working as a single individual, yet collaborating digitally, as opposed to being in a classroom with thirty other learners. Although this learning set up had implications for physical and mental health (Young Minds, 2021), as children and young people felt extreme isolation, loneliness, and anxiety, mainly due to the rules on mixing between households, and the lack of physical contact with other people, the learning skills developed by children, young people and adults are more aligned to some of the newer employment roles discussed earlier (Senge, 2018).

Some learning institutions, particularly in further and higher education, planned to keep these learning methods in place to a certain extent, to help young people develop the skills required to engage in these types of communication and working models, as the value in these skills for the world of employment is evident. However, in September 2021 there was a return to a more traditional model of teaching and learning, with the majority of this being a model of face-to-face sessions.

Yelland *et al* (2008) and Davidson (2012) agree with Broadfoot's argument that the current curriculum is not sufficiently preparing children and young people to use technology in the ways it is used in the professional world. However, when we speculate overcoming this, we must plan how to prepare children and young people to be digitally literate and prepared to master new technologies swiftly (Senge, 2018). Papert (1980) argued it is hard to think about computers of the future without projecting onto them the properties and the limitations of those

we think we know today. Although Papert wrote in 1980, it is true of today's technology. It is difficult to prepare children to work in an adult world with technology which may not have been created yet. One must consider if it is worth giving children the opportunity to develop knowledge and skill with touchscreen devices if these will be obsolete by the time these children enter adulthood. Of course, this argument isn't just about preparing children for the world of work, but also preparing them for future learning and making use of technology as a tool, so any experience with today's technology will assist this. And, as new technology is developed, the learning of this will be considerably less tricky if a child has had previous digital experiences.

Papert (1980) discussed children's ability to learn at a much faster rate, and with more ease if they are immersed in the subject from a young age. Papert (1980) argued that learning to master a computer and to understand the language of computers, in the context of writing programmes and coding, can be likened to learning a foreign language. The best way to learn French is to live in France, immersed in the language, refining, and developing your skill.

Another highly supported theory is that young children learn new languages much quicker than older children, and adults, due to the ease of new synapse development as new languages and skills are experienced (Gopnik & Choi, 1990), therefore, if one were to use these examples, a young child, living in France, surrounded by the French language is much more likely to become fluent in French than an adult who is simply hearing the French language on a *teach yourself French* tutorial.

The same can be applied to becoming confident and competent with technology. Young children who have digitally rich lives, with supportive experiences with confident and competent teachers, find learning with, and using technology throughout their older childhood and adult life easier than someone who has had very little experience of technology, and is then expected to use this in a job role.

The argument to support the advantages of offering children a digitally rich learning experience form part of a wider debate, highlighted by the current Labour party leader Sir Keir Starmer in his speech at the party's annual conference in September 2021, where Starmer pledged a focus on digital skills, making this the fourth pillar of education, alongside reading, writing and maths. Starmer claimed a need to ensure that every child emerges from school ready for work, and ready for life (Scott, 2021).

Selwyn's (2011, 2012, 2016, 2017, 2019) work on education and technology highlights the political nature of education. Selwyn notes that to understand how technology is embedded into education, one must first understand the purpose of education. As discussed previously, the education system has always served the needs of the community and society within which

it sits. To prepare children to fill employment roles and socialise them into becoming productive citizens.

> *"Many of the most important questions that surround education in the digital age are the fundamentally political concerns that should always be raised around education and society, i.e., questions of what education is, and questions of what education should be" (Selwyn, 2017, p. 117).*

Selwyn's (2017) work continues that of Postman (1995) in the 1990s, and his enquiry into whether technology was affecting schools and education in that era. Selwyn notes that Postman unfortunately did not live to see the technology boom of the 2010s, but his original consideration of *"the interaction between technology and society, economics, politics and culture".* (Selwyn, 2017, p. 118) is still relevant. Selwyn states findings from studies investigating the use of technology in education usually report its use to be positive. That using technology enhances education. We have experienced this recently as children made use of technology to continue their learning during national lockdowns, periods of self-isolation due to possible exposure to COVID-19, and when school closures forced classes or whole school cohorts to remain at home.

Postman (1995) reminds us that the use of technology is a human activity. No technology finds its own way into the classroom. Technology is purchased, set up and it's use planned. *"Technology is clearly something experienced within distinct human contexts and with distinct human consequences"* (Selwyn, 2017, p. 118). Human decisions to make use of technology highlights the need to investigate practitioners and parents' (gatekeepers) perspectives on children using technology.

2.5 A theoretical model to view technology use.

Technology is part of a network of society. Humans, their immediate environment, and the needs which technology fulfils. Technology can be used for multiple purposes; to shop, research a recipe, or learn about the life cycle of a ladybird. The society and situation in which they are using the technology, the networks around the device and connection systems involved are all parts of this network which connects humans to technology.

We must also remember the wider social and political structures of the educational setting will influence the use of technology. Timetabling, funding, teacher's knowledge and expertise, or

the reliance on a technology specialist to lead all children's computer lessons. Curriculum requirements, the subtle influences the community around the setting has. Whether the preschool setting has a 'technology focus' or a 'forest school' or 'Montessori' ethos. Wider society influences such as a global pandemic, or the implementation of a new curriculum. In fact, there is a large network of actants that influence the use of technology in an education environment.

It is helpful to view the socio-political systems that affect children and families (such as education, government, health, and the economy) using models and tools. Throughout the evolution of the sociology of childhood (Corsaro, 2014), with the rejection of presociological models, and the belief that categorizing childhood through dichotomous scales, such as *being and becoming*, *structure and agency*, *nature and nurture* did not adequately allow examination. New ideas were sought to understand how childhoods are constructed. Bronfenbrenner's (1979) ecological systems theory allows the child to be placed at the centre of enquiry, and multiple systems can be examined that affect the child, and influence *childhood*, and the various experiences of being in the construct childhood (Bronfenbrenner, 1979).

In this model, systems have various effects on the child. The microsystems, such as family, home and the nursery or school environment usually have the most effect on the child and childhood. Moving to a further system, the mesosystem, linked to experiences the child has directly, but not every day; extended family, community and health services, friends and neighbours, parties, and playdates. Finally, the macro system, includes influences that the child may not directly experience, such as the values, laws and customs of society, the media, government, and the economy (Prout, 2005). This model was used by Ludgate (2018) in her thesis where the use of tablets by young children was examined.

Despite being able to inspect the interaction between systems, for example how changes to the educational system at the macro level can affect the child's early experiences at a micro level, or how the financial strain of recession at the macro level may affect the family's income, and therefore the level of time a parent can spend at home with their child at the micro level, often the links between the systems are left unexamined. Levels are examined in isolation (Prout, 2005), for example the child's micro system is examined without understanding the links to the meso and macro (and chrono) systems, making the model less effective as a tool for analysing the context of childhood; especially when examining changes to childhood over time.

Another criticism of the model is that unequal focus is given to certain levels (Christensen, 2016). The micro system tends to receive greater attention when examining factors which influence childhood, sometimes ignoring the meso, macro and chrono systems, or when these

larger systems are included in examination, the linkage between the systems is not always included in the analysis. This often results in a multi-level, rather than a cross- level analysis (Shinn & Rapkin, 2000). This is supported by James *et al* (1998) who argue this dualist framework only leads to a separatist analysis of childhood. There have been calls for a new sociology of childhood; one which sees childhood as a complex phenomenon "*not readily reducible to one end or the other of a polar separation"* (Prout, 2005, p. 69).

2.6 Actor-Network Theory.

Fenwick & Edwards (2010) argue that when multiple entities are linked through networks, the concepts of micro macro, local global do not exist. Ecological systems theory asks *how has the system been compiled*, whereas Actor-Network Theory (ANT) asks *what holds the system together*? An ANT lens allows consideration to how actors, even non-living actors, such as internet access, or government policy have equal weighting when considering how elements of the network influence other actors. Following research and discussions with my supervisory team, I proposed Actor- Network Theory (ANT) as a suitable tool for viewing childhood and preschool life, rather than the dichotomous model of Ecological systems, that retains realism and objectivism (Mutzel, 2009).

ANT illustrates how the network can flow back from the individual to national or Government level. An example of this is how my findings may influence national structures such as awarding organisations who create qualifications, and local authorities who may use this thesis to begin a process of investigating the funding for training, CPD and resources. As Prout (2005) explains, ANT is a form of relational materialism, where materials, such as Government policy on curriculum, a global pandemic, and awarding organisation qualification specifications, are in a relationship with social life. The social life of an early years setting, or the social life of an EYP, and have effect on that social life. ANT seeks to examine these relationships, and how each part of the network can have effect on multiple strands of the network. Human and non-human subjects have equal potential for influence.

Actor-Network theory (ANT) is not a theory *per se*, rather a theoretical orientation based on the ontology of relational practices (Kitchin & Thrift, 2009), emerging from the social study of technology. ANT assists in examining a situation by breaking down the parts of the whole; that is, ANT allows examination of a situation, act, artefact, person, object, or environment in relation to all that allows, assists, affects, and enhances its place in the larger network.

> "*We cannot say that an oak tree is contained potentially in the acorn, since this would spare us the labour of following the series of risky transformations by which the acorn and each of its analogous successors seek their respective fortunes*" (Herman, 2007 p.40).

ANT is concerned with the materials from which social life is produced and the processes by which these are brought into relationship with each other (Prout, 2005). Where ANT differs from the usual sociological explanations is it sees dichotomies, such as structure and agency, as phenomena that require explanation, rather than the explanation of the situation (Prout, 2011).

ANT is an epistemological positioning that situates the non-human in an equal position in creating reality (Law & Hassard, 1999). It rejects human determinism, viewing all elements of a network to have equal value and worth equal enquiry. The social emerges from the intertwining of the human and non-human actants playing a role in producing and being produced in pattered networks. That is not to say that non-human actants have agency, and act upon humans in a conscious manner. They can and do however influence humans through their place in networks and are therefore equally deserving of consideration. One example of this is the internet. The internet does not consciously act upon humans. However, it cannot be denied that the internet influences human behaviour and action. As Latour (2005) argued, without the non-human, humans would not last a minute.

ANT analysis requires all actants in this network are awarded equal consideration. ANT frames the social as a specific manifestation that emerges from the interactions between specific users with their own sociocultural resources, specific non-human features, and affordances (Mutzel, 2009). As Bond (2014 p.36) states, ANT helps us to see the everyday experiences of childhood and technology use as interlinked, rather than a "*heterogeneous collection of materials*". Further, Bond (2014) reminds us that as children using technology, there are powerful forces within the network, namely adults and the constructs of adult society which will

dominate how children have access to and are able to engage with technology and media, including the internet.

To apply ANT as a lens for viewing the research, one must decide where to cut the network into a manageable size to begin viewing the actants surrounding the concept. Mettion (1999) critiques ANT by arguing the network ontology is infinite, therefore it is impossible to analyse. However, Strathern (1996) defends ANT by arguing you just need to know where to cut the network. My research examined the views, experiences, and opinions of EYPs on the use of technology in early years settings, so one may decide to extract a single aspect, such as *devices situated in an early years setting* and examine the network around how these got into the setting. The research carried out to choose the particular devices, funding decisions made on how to pay for them and the possible conversations with management or the trustees of the setting. Choices made about apps, programmes, games. The planning by practitioners on when these will be introduced. How many children the activity will support at any one time. Whether the activity will be child or adult led. The decisions made to charge and turn devices on and make them available to the children.

As Latour (2005) noted, individuals, situated in their individual circumstances, interact with media to create a socio- technical reality in unique manners (Tatnall, 2002). Therefore, in ANT, one should assume actants are influencing these views and opinions of the actors (EYPs). To examine the network around this, one must extract a small portion of the larger network. As Kreswsell *et al* (2010) critique, data collection cannot go on forever. At some point the researcher needs to decide when and where to stop examining the network. In this instance, the portion of the network is the act of choosing how much, or how little, technology is used in and discussed in an early years setting's continuous provision and included or plays a lead role in adult led activities. With this example, the practitioners and other actors would be connected in a network:

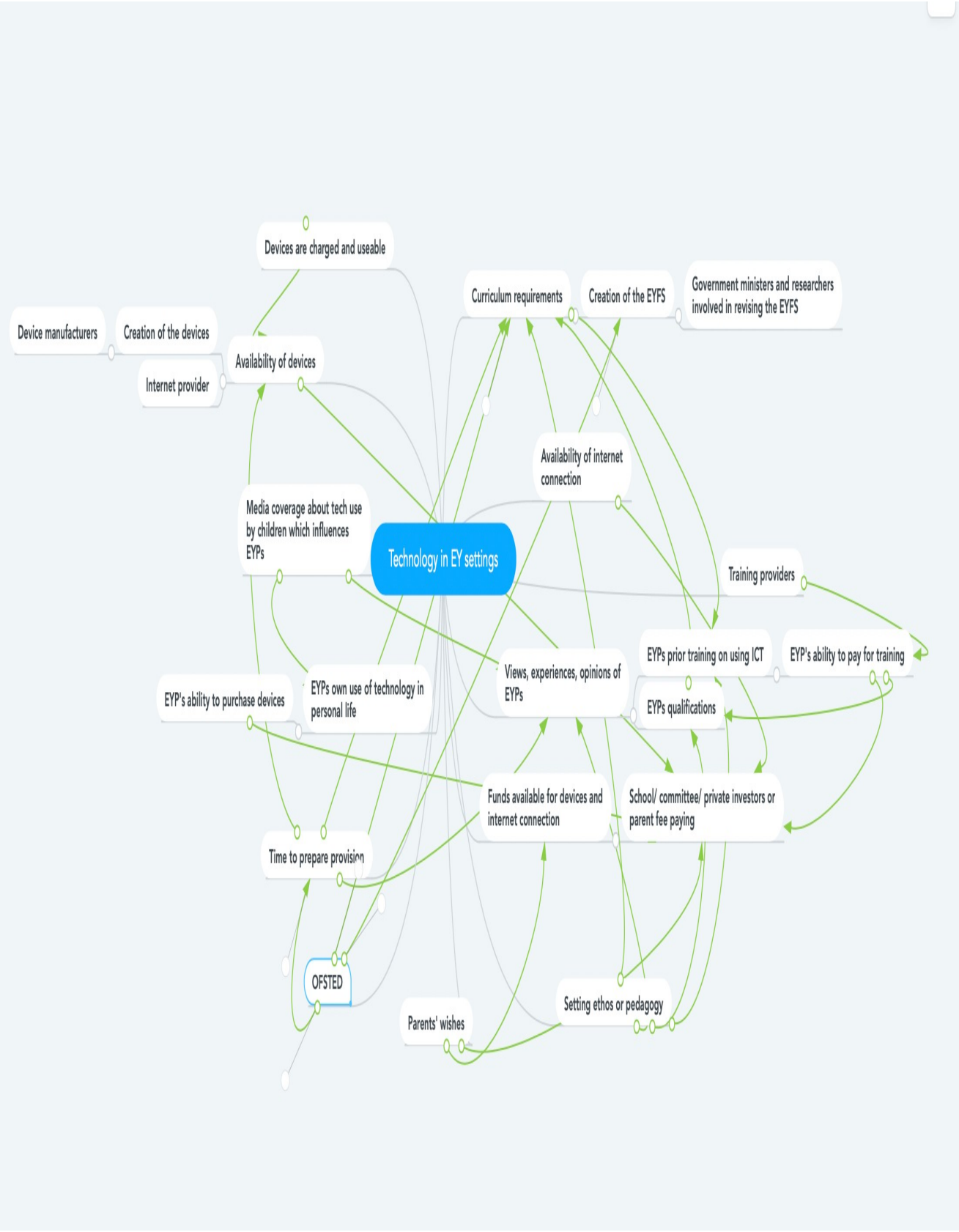


Diagram 1: Illustration of Actor-Network Theory surrounding the use of technology in Early Years Settings.

There are multiple actants involved in this network, and each one will have multiple actants involved in their linked networks. In the illustration there should be smaller bubbles added within the link lines to include correspondence between the actants, such as conversations between the internet provider and the setting manager; the bills that are paid; the conversations when the internet fails so the setting cannot use the internet for teaching and learning. Thoughts, feelings, conversations. This is simply to illustrate the need to identify a small portion of a network to analyse. It is impossible to analyse a whole network.

Clearly, there are many actants influencing the actors' (EYPs) decision on using technology in early years settings. It is possible that some of these are exerting higher levels of influence at certain times. For example, the Momo challenge internet phenomenon of 2019 had a network of actants, including the hardware and software involved in producing the original Momo doll, photographing the doll, and uploading the photos. Further, the technology involved in creating the media panic, the individuals involved in the idea of creating the media panic, those spreading the story of Momo, and the influence of stakeholders such as the police service investigating the incident (Phippen & Bond, 2019).

This Momo scare then became part of other networks, such as Tweets and Facebook posts by parents, teachers, preschool workers, and celebrities, all acting in their own networks to participate in the scaremongering network and the spread of false information to others. These false stories then became actants in the network of EYPs practices in decisions about using technology with their young children in setting. At the time, these stories and internet posts would have been extremely forceful; more so than another part of the network. Maybe the EYFS requirements, or the teaching plan for the day which included the children using a tablet to support emergent reading, or children's desires could have been put aside. At that time, the Momo challenge actant in the network would have taken prominence in the decisions to use technology with very young children.

Similarly, when a new article is circulated through early years magazines such as Nursery World, early years practitioners read this, and this article becomes an actant in the network. This article influences practitioners' decisions or causes them to reassess the level of technology used in their setting. At that time, this article is exuding a heavier force within the network than other factors.

ANT has been criticised in many ways. One criticism is that the name ANT is misleading (Kresswell *et al.* 2010); ANT is not a theory, and therefore many expect too much from the concept. It cannot explain a situation to predict behaviour using a theoretical model.

Others have subsequently claimed that any research based on ANT can only be descriptive and cannot provide any beneficial input to the field (Heeks, 2013). As the purpose of this thesis is not to produce any new theory, nor to test a hypothesis, but to give a voice to early years practitioners and provide rich insights into their experiences, at a time of significant change in the political and practical landscape of the sector, to share practitioners views and experiences of working through a global pandemic, and to recognise an area of practice as important as technology use, ANT appears to be an effective tool for viewing the networks of factors which are influencing practitioners when they are thinking about using technology. As described by Bond (2014 p.64), ANT seeks to identify how varying entities are interlinked, and examines agency and society as "*faces of the same phenomenon*".

2.7 Conclusion.

In this chapter I have examined the socio-political changes in England from the turn of the century to the present day. This macro-overview of how the socio-political landscape affects children and family life, highlights the social construction of early childhood, and how education (including the use of technology in educational environments) is affected by multiple factors, which were examined using an ANT lens. I argued that the English education system is used by educators and policy makers to prepare children to take a place and a role within the adult world; in roles to suit the needs of industry of the time. Preparation for their adult work role begins with formal schooling, and the testing, assessment, and grading of children, according to their academic ability, through routine standard assessment tests (SATS), formal examinations such as GCSEs, and informal grouping, based on their need for support to achieve qualifications. These qualifications will direct and influence their prospects, as they enter late childhood and their teenage years.

The early years education system was examined in relation to the socio-political influences that have shaped this institution to fit the needs of the changing society. Particular focus was given to academics who argue that the current education system in England is not preparing children and young people for technology use in employment in contemporary society. When one considers how technology laden our world is today, clearly, the use of technology should be included in the curriculum for children, to prepare them for many parts of their adult life. Yet, as Wilson (2021) states, the young people who are leaving formal education and entering the workplace, often lack the functional skills required to use technology in a work environment. Even young people themselves acknowledge there is a disparity between basic communication skills, which in a survey conducted by the Learning and Work Institute, 88% of

respondents felt they have, whereas only 18% of young people believed they had the more advanced skills employers might need (MacDonald, 2021).

This section highlighted the importance of a continued evaluation of educational frameworks, at all levels, to ensure these are preparing children and young people for their progression, and eventual release into the workforce. Curricula for early years, national key stages 1-4, and further education are monitored, reviewed, and updated at varying points, depending on whether they are viewed as fit for purpose. This is based on legislative changes and the Department for Education's latest intelligence on subject content, teaching pedagogies and best practice. The last amendments were published in 2013, and for specific primary key stages 1 and 2, 2015 (DfE, 2013). When considering how quickly technology changes, this is a long period of stagnation since any updates on technology use were made. For early years, the newest publication was published in September 2021, and the evolution of this EYFS framework is the subject of the next chapter.

Finally, I considered ANT as a fitting model to describe and examine these macro societal systems. ANT is a helpful lens through which to view childhood and the practice of caring for young children, to emphasise the ever-changing connections between actants, and to appreciate how various actants exert differing levels of force at different times. (Fenwick & Edwards, 2010).

Where in this chapter I have examined the institution of early years education, in the next chapter I focus on the framework that makes the curriculum of the early years education system, the EYFS.

Chapter 3 The evolution of the early years curriculum.

3.1 Introduction.

As this thesis focuses on the use of technology within early years settings, and the practitioner's perspectives of this, it is important to examine how technology is embedded into the curriculum framework for early years in England (the EYFS). In this chapter I identify developments in the English early years care and education framework from its origins; *The Foundation Stage* (2000), designed to support children aged 3-5 (QCA, 2000), and *Birth to Three Matters* (2003) which was designed for children under the age of 3 (Foundation Years, 2012), to the current publication of the EYFS, and examine how technology has been included within the frameworks over this period.

In this chapter I claim that historically, the EYFS has guided EYPs on their role in supporting children's use of technology, and this guidance has evolved throughout the publications to 2017. However, the most recent publication has seen technology and ICT removed completely from the framework, and I believe this may affect the provision children experience.

I examine the Department for Education's justification on the removal of technology. The purpose of revising the EYFS was to reduce attainment gaps in language and literacy (DfE, 2021). However, the removal of technology from the framework has not been fully justified, and I argue this raises questions about how EYPs are expected to embed technology into their provision without sufficient guidance or training. Further, I argue that as technology is such a crucial part of our world, children's early experiences of using technology should be supported by qualified and knowledgeable practitioners. Over 1.5 million children in England attend one of the 62,000 OFSTED registered childcare settings in England (DfE, 2021). Therefore, it is vital we ensure our practitioners are supporting children based on standardised and educated practice.

Finally in this chapter I examine the political landscape associated with the role of EYPs, and the increasing problems the sector faces in the recruitment and retention of qualified staff. I examine the expectations of EYPs in terms of care and education of children, and engaging

in professional learning to highlight how important it is for professional learning to cover aspects of the role, including the use of technology.

3.2 The frameworks for education and care.

Before the EYFS.

The first early years framework for care and education in England; *The Foundation Stage* was introduced in September 2000, as a result of the National Childcare Strategy in 1998, led by the New Labour Government to tackle childhood poverty and increase partnerships between settings and families. The intention was to break down divisions between care and education (QCA, 2000). This curriculum was framed on 6 areas of learning:

- Personal, social, and emotional development
- Communication, language, and literacy
- Mathematical development
- Knowledge and understanding of the world
- Physical development
- Creative development.

Each area of learning included early learning goals, which settings were to prepare children to achieve by the age of five years old. Page 8 of the document described how settings and providers should support learning. The framework included the word *technology* under the heading *Creative development*; with opportunities for children to explore and share their thoughts, ideas, and feelings through a variety of art, design and technology, music, movement, dance, and imaginative and role play activities (QCA, 2000).

Although this was the only specific instruction on the use of technology within this framework, the document gave scenarios or examples of good practice for settings and practitioners to follow. One such example discussed the use of role play and the home corner to allow child-led play to develop. The scenario described the area being set up as a hospital. The use of equipment such as a telephone, thermometer, x-ray machines and other hospital pieces could be introduced for the children to use, introducing technology into a child-led experience. Of course, it was not expected that childcare settings would have real x-ray machines, but the possibility of making imaginary machines, or using non-working telephones, toy thermometers and other pieces of equipment, either non-working or made from cardboard, would allow the

child to play in an imaginative way, give context to these pieces of equipment, and encourage role play. Further, these situations would also give the practitioner the opportunity to teach the child about a hospital experience or use story books to consolidate learning about this situation.

In this example, the child and EYP are constructing the child's reality, through experiences they have had or to prepare them for potential experiences in the future. This section of the framework, *understanding the world* was, and has always been socially constructed by the environment around the child. The social construction of health is dependent of society's views and opinions of health and medical treatment (Wilson, 2022) and these constructions are based on English hospital experiences, which will be different to other children's experiences of hospitals in other countries. The experiences children have in these role play situations help them develop language and communication skills as they pretend to be a doctor, nurse, or patient. They develop emotional skills as they pretend to be in pain, or sad, or happy as they get better. They also develop an understanding of the environment that is set up, and this can build knowledge that may help them in future situations where they attend hospital as a patient (Veraksa *et al*, 2022).

In this role play environment, the practitioner's role would be to ask questions to extend knowledge, model the use of equipment to support development of operational competence, encourage language and social skills through imaginative play. Other scenarios shared good practice in activities such as cooking, where technology would be introduced by using whisks, timers, scales, cooking apparatus. This type of activity would be more adult led, with modelling and scaffolded support offered, depending on the age and ability of the child; but still technology was an expected part of this activity. This framework did not assess children's competency of the use of any of such equipment, and therefore these were simply ideas to support practitioners' provision planning.

Other devices were mentioned for use with children in these examples of good practice. Music tape players, torches, calculators, computers to make tallies in maths, television to watch a programme which leads to an art activity. In *understanding the world* computers were mentioned as a device to understand how to control to receive a desired outcome (QCA, 2000). This framework did acknowledge technology as part of a child's world, but the learning was about affordances of technological devices, for example, using a hairdryer to dry your hair.

The inclusion of technology was designed to teach children about how technology is seen in their world, for example in the kitchen or a supermarket, and the technology included in play was to encourage role play of these types of situations need. Technology used by children at

this time was still based around tech toys and home devices, or those used to listen to music or watch television (Woods, 2023). The internet was not commonplace in English homes until after 2008 (Beckett, 2022), so the guidance on using technology with children was appropriate for use at the start of the 21st century.

Following the publication of the Education Act (2002) due to the Foundation Stage Framework not giving guidance for practitioners working with children under the age of three, *Birth to Three Matters* was introduced (Foundation Years 2012). Led by Professor Abbott, a steering group drew ideas from their experiences in research, practice, management, and worked with the Department for Education and Skills (DfES) to produce a framework to guide those working with under threes on best practice for their care and education (Abbott & Langston, 2005).

This framework had very little information on technology use with young children, as expected for this period, the technology mentioned included the use of old home telephones, so babies and young children could imitate communication during role play, and the use of some cooking equipment during adult led cooking activities (Abbott & Langston, 2005).

The Government also expected practitioners to work in accordance with the *Full Day Care National Standards for Under 8s Day Care and Childminding.* (DfES, 2003). These standards were the minimum requirements for provision of facilities, hygiene, and safety, so did not address the curriculum. Therefore, practitioners caring for children from birth to school age were working under three separate frameworks. Subsequent research on the effectiveness of early years settings in combining the care and education of all children resulted in the most successful elements of all three frameworks being combined, in the new EYFS that was introduced in its first format in 2008 (Scott, 2015). The EYFS was also designed to raise attainment for children entering school, particularly in literacy and maths (DfE, 2008).

The 2008 framework included a section within the area of learning and development *Knowledge and understanding of the world* dedicated to ICT (DfE, 2008, p. 77). The EYFS was created with advice published in the DATEC's *Developmentally Appropriate Technology in Childhood project,* undertaken in the USA by NAEYC (National Association for the Education of Young Children) (1996, updated 1998). The guidance project concluded that technology for young children should support the following:

- Applications should be educational.
- The use of technology should encourage collaboration.
- ICT should be integrated and should be playful.
- The child should be in control.

- Applications should be transparent and intuitive.
- Applications should not contain violence or stereotyping.
- Using technology should include an awareness of health and safety and safety issues.
- The educational involvement of parents should be encouraged.
  (Siraj- Blatchford, 2003).

This section of the EYFS set out how babies and children should be given the equipment, resources, and opportunity to learn about the world through active exploration. This includes the use of technological equipment, giving examples such as "*cameras, photocopiers, CD players, tape recorders and programmable toys in addition to computers*" (DfE, 2008, p. 78).

This selection of equipment was consistent with this time and implies the intentions for this were to support operational competence of equipment and affordances these offered. However, the clear positioning of the ICT within *Knowledge and understanding of the world* with a separate section for ICT gave practitioners at this time a well-defined understanding of their role in supporting children with technology (Aubrey & Dahl, 2008).

In the updated version of the EYFS in 2012, technology was mentioned further, across the framework, embedded into literacy and mathematics, and the use of tech toys for babies.
There were two areas which focus on the use of technology in the 2012 framework:

Expressive Arts and Design Early Learning Goal.

> "*Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories" (DfE, 2012, p. 46).*

Understanding the World (technology) Early Learning Goal.

> *"Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes" (DfE, 2012, p. 42).*

These two statements demonstrated a change to the concept of technology use as a means of multimodal learning, not just about operational competency, or affordances of the equipment. Multimodal learning is described by Yelland & Gilbert (2017) as the ability to explore concepts in a range of modalities; embodied and digital and use different forms of representations to express their ideas. For example, a child may have seen their favourite TV show at home, they tell their key person about this. To extend and consolidate learning, the practitioner may use a story book about the character, (developing literacy and communication and language), the child may draw pictures of the character, (developing expressive art and design and fine motor skills). Soft toys of the characters may be used in the role play area to construct a scenario supporting imaginative play (social skill and communication development), and junk modelling used to create scenes from the TV show, (expressive art, and design). The child may paint pictures from the TV show and use a tablet to design the character's house, (understanding the world).

The use of technology here isn't just about using technology for the sake of using technology, or ticking boxes in the curriculum, or learning how to control a piece of equipment to elicit the desired outcome. It as a supportive and consolidative method of learning, combined with many other tools and resources (multimodal) employing as many methods as possible to give the child a wide and varied choice of learning modes. As Yelland (2018) explains, children have always learned through multimodalities; linguistic, visual spatial, aural, and kinetic dimensions, the 21st Century has brought a new mode which practitioners need to embed into practice.

Marsh *et al* (2015) discuss how multimodal learning has been embedded into early childhood literacy within the home environment for some time, that parents embrace devices to support learning as an alternative to printed resources. Parents often use a range of modalities; art resources, cooking, soft play, playdough, music, and technology, which will centre on a theme. This consistency gives the child a sense of security and confidence, encourages deeper level learning, and sustained shared thinking, and consolidates learning through child led activity focus or theme, based on the child's interests, and likes.

The wording in the 2012 EYFS framework suggests that settings were beginning to use technology not just to support children in learning how to operate cameras, printers, and other equipment for their designed purpose (affordances of the devices), but also for supporting other methods of learning, differentiating the activities, and allowing exploration of alternative modes of expression.

As the early years framework evolved over the next seven years, the EYFS 2014 included changes to the welfare requirements, but no changes to the framework which relates to teaching and learning. Again, in 2017 reforms were made to the statutory requirements, no

changes were made to the framework concerned with teaching and learning. So, until 2021, the areas of learning and development framework was based on the 2012 version, which included the use of technology in two main areas; *expressive arts and design*, and *understanding the world*, where it had a specific section on technology. Both areas of learning and development include technology within the early learning goal, on which children were assessed in their reception year of school.

Content of the current (2017) Early Years Foundation Stage Framework.

The complete early years framework included the document *Statutory Framework* (2017) which set out the minimum requirements for the setting, (DfE, 2017). The framework also included the *ARA Assessment and Reporting* document. This was guidance on the statutory assessments required for children. The progress check carried out when the child was aged two, and the second mandatory assessment, the EYFS profile (EYFSP) which takes place at the end of the child's reception year at school. This assessment is carried out by the child's reception class teacher and includes an assessment of the child's level of competency and ability in 17 areas, including the use of technology. The EYFS gives guidance on how these assessments must be carried out, recorded, and shared (DfE, 2017).

The framework also included the documents *Early Years Outcomes* (2013) and *Development Matters* (2012). These non-statutory guidance documents gave practitioners a framework of normative development, helping them to understand what to expect in terms of physical, cognitive, social, and emotional development at each age and stage of a child's early life. The framework split into areas of learning and development, of which there were seven. For babies and children under the age of three, practitioners should focus on the three prime areas of the framework. For children aged 3-5, practitioners should then incorporate a further four (specific) areas, to create a curriculum that promotes development in all seven areas as shown below:

	Area of Learning and Development	Aspect
Prime Areas	Personal, Social and Emotional Development	Making relationships, Self Confidence, and self-awareness, Managing feelings and behaviour
	Physical Development	Moving and handling, Health, and self-care
	Communication and language	Listening and attention, Understanding, Speaking
Specific Areas	Literacy	Reading, Writing
	Mathematics	Numbers, Shape, space, and measure
	Understanding the World	People and communities, The World, Technology
	Expressive Arts and Design	Exploring and using media and materials Being imaginative

Table 3: The 2017 areas of learning and development. (DfE, 2012, p. 5).

The Early Learning Goals and EYFS Profile assessment.

As mentioned earlier, the EYFSP is carried out towards the end of their first year of formal school, at the end of the EYFS, just before the child enters year one (where the framework changes to the National Curriculum). Children's experiences from birth can all be classified into the areas of learning and development of the EYFS, and these experiences which can help the developing child learn about their world are observed and recorded in this profile assessment. The purpose of the assessment is to assist the teacher as the child transitions, to support planning for year one of school. It also supports Government monitoring of progress nationally. The *early learning goals* within the EYFS are used to assess whether a child has knowledge and competency on the particular learning goal, so in the case of technology, children were assessed as to whether they '*recognise that a range of technology is used in*

places such as homes and schools. They select and use technology for particular purposes' (DfE, 2012, p. 42). It is policy assumption that all children's experiences of technology before this profile assessment would have supported them to gain competency (Price, 2009), which was assessed during the EYFSP. Teachers could ask parents and families to be involved in collecting data for this assessment to gain a holistic view of the child's technological experiences.

The child's knowledge and competency are graded as either emerging, secure, or exceeding. However, every child's experience of technology, both at home and in their preschool setting would be different, and therefore the assessment grade could be viewed as unfair, with some children having more of an advantage at this stage, especially children whose home and preschool lives are digitally rich. Other children may have had a deficit in digital experiences, because of a preschool setting that had no funds to purchase equipment, a setting actively choosing to minimise the use of technology, a home life that included a ban on technology, a home where the internet wasn't used at all.

Examining how this area of the framework has evolved since the creation of the EYFS in 2008, observing how technology is included in provision in various settings, and reviewing how the early learning goal is assessed has influenced my research into how practitioners view the use of technology for children under the age of five.

Practitioners' implementation of the EYFS.

Within the 2017 EYFS framework, technology sat within the *specific* area of learning and development entitled *Understanding the World*. Practitioners were expected to ensure children received opportunities to develop skills and understanding of technology at age-appropriate levels, with guidance statements within the *Development Matters* document such as '*Support children to coordinate actions to use technology, for example, call a telephone number'* (DfE, 2012, p. 42), and '*Teach and encourage children to click on different icons to cause things to happen in a computer program'* (DfE, 2012, p. 42).

Practitioners were not told *how* to implement these but given examples of knowledge and skills that a child may be able to achieve at various age ranges, such as birth to 11 months, 8-20 months, 16-26 months, 2236 months, 30- 50 months, and 40-60+ months.

It was expected practitioners' college and university early years training would prepare them know how to offer appropriate activities and create a learning environment to allow children to develop age-appropriate skills and knowledge about technology. Therefore, if practitioners are expected to be knowledgeable and confident in using technology and supporting children's

use of technology, it is vital their training properly equips them for this task, and that training and continued professional development is available to practitioners, who may have completed their initial early years qualifications twenty or thirty years ago, to keep up with the fast pace of technology change. The expectation that early years practitioners would have had adequate training in supporting children to use technology, and in using technology as part of their job role has directed my research.

The revision to the EYFS in 2021.

The early years framework has been reviewed and updated several times since its creation, to reflect legislative changes, changes in requirements for protecting children's welfare, changes to theoretical concepts of planning, observation, and assessment, to keep the framework in line with current thinking and practice. The 2021 version of the EYFS was trialled in the academic year 2018- 2019. The pilot had revisions to the educational programmes and early learning goals. The 2017 ELG *Understanding the world* (which held the *technology* aspects of learning and development, where children would be assessed on the competency, skill, knowledge and understanding of technology) was revised, and technology was removed from the ELG. In fact, technology was removed completely from the statutory framework. The words *technology* and *ICT* do not exist in the latest statutory framework at all.

One might question whether this change will widen the gap of inequality of experience between children with digitally rich preschool experiences and children who have experienced a deficit in the use of technology.

A trial pilot for the new EYFS framework was carried out in 24 randomly selected state-maintained school nurseries in the academic year 2018-2019. Following this pilot year, evaluations of the feedback from practitioners from these schools was analysed by NatCen, who released the findings for consultation which closed on 31st January 2020. Consultations and views were sought from practitioners and teachers involved in early years teaching to gather opinions about the proposed changes. Many practitioners and teachers who took part in the pilot questioned the changes in maths topics, and the removal of a focus on assessing '*shape, space and measure'*. Practitioners asked how OFSTED would know if these concepts are being taught as part of the curriculum, and whether still have to teach these concepts.

The Department for Education early years reforms lead stated that although these elements of maths had been removed from the early learning goals, the ELGS are not intended to be used as a curriculum, although, she admitted, early years practitioners do use the ELGs as a

curriculum. So, removing these elements from the ELGs did not mean the DfE intended to have these removed from the teaching carried out at this level (Foundation Years, 2020).

These questions could also be applied to the use of technology. If technology is not mentioned anywhere in the statutory framework and there are no official guidelines issued by the DfE to support practitioners on the amount of time, the devices and equipment that are suitable for children to engage with technology, and no measurable outcomes to examine, how can we be sure all children will be entering education in year one, and the National Curriculum, at which point technology and ICT become part of their curriculum, with equal experiences and opportunity to progress in the use of technology and IT.

As Faulder (2019) explains, during the 2012 revisions of the early learning goals, programmable toys were removed from the assessment description. Soon after, a decline in coding provision was seen in settings. So, if ICT and technology are now removed completely, what will tech provision look like in six months' time and further into the future?

The EYFS reforms consultation explained the rationale behind the changes were to make the ELGS more streamlined, to focus closing the gaps in literacy between children from disadvantaged backgrounds, in the hope that when all children enter year one, they are all working at similar literacy levels. However, one may question whether removing all ICT and technology from the early years framework is wise, considering the use of technology is vital today, at home, in school, and preparing children for the world of work. Technology is not going away, so removing all trace of this from a new, revised early years framework almost appears to be a step backwards, rather than progression in line with current teaching and learning, not parable with children's' practices at home, and certainly not preparing them for a part of the national curriculum which so many feel the EYFS is the steppingstone to. The rationale given for removing technology is.

> *"The consensus from our experts, primary assessment consultation responses and then pilot evaluation suggests that this has little value as an end-point measure in itself" (DfE, 2019 p.21).*

This removal of technology from the framework was the catalyst for one of the aims for this research, to investigate practitioners' views on these changes to the EYFS, and to explore their views on whether they felt this would change their own setting's provision for technology.

Following this examination of the EYFS framework, the next section analyses theoretical viewpoints of child development and pedagogies of teaching, which are evident in the EYFS framework, and an application of these theories to children's use of technology as part of the provision.

3.3 Theory of child development behind the EYFS framework.

Most of the theoretical concepts of child development since the second world war have centred around behaviourism. Children's learning was modelled on rote learning, training, and repetition, often to prepare children to pass exams (Cunningham, 2006). Cunningham's explanation of how learning takes place conflicts with the ethos of the EYFS framework which encourages exploratory, play based and child centred activity, which produces deeper level understanding.

Later theories of how children learn have focussed on the cognitive processes involved in learning, changing the landscape of theories of child development, and learning to focus more on the internal and unseen processes of the mind; the field of neuroscience (Macblain, 2020). Prominent theoretical concepts evident in the EYFS include developmentalism (which is evident in school banding, assessing, and teaching of children according to their biological age, and is the dominant theoretical concept in the country's educational curricula), individualism, collectivism, and social constructivism. The next section of this chapter will outline the most predominant theoretical concepts within the EYFS, starting with sequential developmentalism and moving on to social constructivism, including social learning, to examine how learning with, and experiencing technology can be seen through each of these theoretical lenses.

Developmentalism.

This stance of child development; the stage of a child's development affecting how, and what they can comprehend and learn, esteemed by Piaget (1936) favours a view of a naturally ordered sequence of development towards logical and formal thinking. Developmentalism refers to an understanding of a child's holistic development (Teater, 2015), based on chronological age. Developmental stages have been noted as far back as the 16th century, with records of predicted physical and behavioural changes in children at various ages (Walsh,

2005). Early childhood is often theorised in terms of age and stage, with theorists categorising developmental milestones which presume natural ontogenesis to be optimal (Stone, 1996). Work on child development from Erikson (1963) and Piaget (1936) included an age and stage-based framework, with chronological age being the milestone to expected certain cognitive, language, memory, and problem-solving skills. Examples of this include, Kohlberg's stages of moral development (Kohlberg, 1971), Erikson's psychosocial stages of development (Mcleod, 2008) and Piaget's four stages of cognitive development (Piaget, 1964).

Piaget's stages of development are described as a period in which the child's behaviour and thinking reflect a type of underlying mental structure. Each stage provides a different view of the world (Goswami, 2014). As the child experiences and learns about their environment, the learning is assimilated and accommodated, changing the structure of thinking as the child moves to the next stage. Piaget's theory is described as genetic, maturational, and hierarchical. Piaget believed that as a child actively attempts to adapt to the environment, they organise their knowledge into schemata; assimilating and accommodating new knowledge (Nutkins *et al.* 2013).

Piaget's developmental process argues as children age and their brain develops, they begin to understand the world around them differently. They can understand situations and experiences better. They can then assimilate and accommodate this understanding (Giardiello *et al,* 2013). For Piaget, the developmental stage transition happens first, following social world assimilation and accommodation, making the biological age of the child the most defining factor of how they can learn and understand the world around them.

The EYFS framework has foundations built on Piaget's stages of development. The supporting document, *Development Matters* gives guidance to practitioners about what to expect children to achieve at certain ages. The document is broken into the seven areas of learning and development. The document then gives practitioners guidance on some of the examples of what to expect children to be able to achieve within these areas at bracketed age ranges. The examples of developmental milestones are based on Piaget's developmental stages (sensorimotor stage, preoperational stage, concrete operational stage, and formal operational stage) (Ang, 2014).

The end of the EYFS stage assessment (the EYFS profile) which is carried out in the final months of the child's reception year at school, is assessed with the same criteria, regardless of gender, cultural background, whether they are a summer or autumn born child, or any additional needs, suggesting a strong belief that linear developmental stages are relative to a child's age, rather than external factors having any impact on a child's level of ability,

knowledge, or skill. There have been criticisms of the EYFSP for this reason (Rix & Parry, 2014), and although the DfE recognise that the assessment may be more challenging for children with SEND to achieve those expected or exceeding marks (DfE, 2019), it is still mandatory for the assessment to be completed using the standard format.

Although Piaget's work was based on children's development being predominantly influenced by their chronological age, he did acknowledge how cultural and societal differences can affect the development of the child and passing from one stage to another. Piaget's (1964 p.178) studies on children from various countries led him to conclude: "*Although the order of succession is constant, the chronological ages of these stages vary a great deal"*. This is one of the reasons why the *Development Matters* guidance gives age brackets to the expected developmental milestones; recognition that not all children will develop at *the same* rate, based on their chronical age. Piaget's observations of children's development in different countries across the word also noted the variety of ages in which children started formal schooling, and this was a factor considered when comparing children's ability, knowledge, and skill. "*So you see that these age variations show that maturation does not explain everything"* (Piaget, 1964, p. 179).

Sociocultural theory.

Vygotsky's work in the late 1920s and early 1930s which has contributed to the term *sociocultural theory* asserts that learning is an essentially social process which is mediated with the support of parents, caregivers, peers, and wider society (Discoveries, 2019). Learning cannot take place without interactions with other people, and objects. A theory supported by examples of children whose early lives have seen deprivation of attention, affection, stimulation, and guidance from adults. Cases such as Genie (Curtiss, 1977) and accounts of growing up in Romanian orphanages (Nelson *et al.* 2014) show the detrimental effects deprivation of social interaction has on a child's development.

Culture plays a crucial role in the development of higher psychological functions (Goswami, 2014). Sociocultural theory includes the use of cultural tools; physical or cognitive artefacts, of a culture or time which help individuals or groups to perform tasks, learn or work (Smidt, 2009). These cultural tools make learning meaningful and authentic. Technology can be thought of as a cultural tool, of the twentieth and twenty first centuries, and, predominantly of the Western world. Children of these times and geographical areas will make use of these cultural tools in

their learning and living. It is therefore the role of the setting and practitioner to provide these cultural tools for the child to experience and learn to master.

The tools can be technological artefacts, in which case analysis focuses on human-technology interaction, or dialogue and social practices (Plowman *et al*. 2010). Both technological tools, and interaction and discussion between children and adults about technology in a variety of circumstances contribute to a child's understanding, knowledge, and competency in technology. For this, it is essential, as Vygotsky describes, the experienced adult must be present to scaffold and guide the learning. The value of the adult role is prominent in the EYFS which encourages practitioners to foster positive relationships with their key children, enabling the child to build attachment and view the practitioner as a trusted guardian who can support their learning.

Changing with each published version, in accordance with the advances in technology, as previously examined, early versions of the EYFS advised children had opportunities to experience technology use in everyday situations with everyday equipment, such as washing machines, desktop computers with a mouse, torches (QCA, 2000). The 2017 EYFS included encouraging technology use with examples of equipment being cameras and electronic keyboards. Today, settings use much more advanced examples of technology such as tablets, smart watches, programmable toys, personal assistant programmes such as Alexa and Siri, home hub devices such as the Echo dot, and interactive white boards (IWBs).

Papert's (1980) accounts of children's technology use depict children using early programmable devices such as the turtle (Papert, 1980) which was considered advanced tech in the 1980s. As technology has advanced, many settings have kept their resources very current however, some have not. There can be many reasons for this. Some settings may not be able to update their technology resources due to a lack of funding to upgrade equipment, so children may be using outdated, slow, or broken equipment. Some settings may only include items considered 'retro' or 'relic' such as old mobile phones, tills, calculators. A lack of internet coverage to use applications or to download activities and games may force some settings to give up trying to use anything that requires internet use. The setting management may actively decide on a minimal tech approach, especially settings whose ethos is to focus on natural objects and forest school. These reasons are described as extrinsic factors (Jack, 2019).

The individual reasons for having less, or no technology results in the cultural (technology) tools being different to those children whose setting can provide experiences using the latest technology (Edwards, 2003). This poses a question about how valuable this type of play is for children; can cultural tools, which are considered so outdated, they are referred to as 'retro' or 'relic' which do not reflect the most current technology used in the adult world be beneficial for

children to use. Siraj- Blatchford (2003) argues that the curriculum should be preparing children to use technology which will be available once they are adults, using technology as part of their work and adult life. This is difficult to predict, as technology moves quickly, and therefore almost impossible to envisage what today's children will be using as adults. One may question whether a child learning to use a QWERTY keyboard and a mouse, or a very old mobile phone that doesn't work is beneficial. Papert (1980) argued, it is better to have some technology, than nothing at all.

Learning is a social experience.

Vygotsky emphasized the importance of children engaging with the teacher, and other children, not for others to impose knowledge on to the child, nor for the teacher to teach the child, but for others to support the child to learn by scaffolding help and support; gradually reducing levels of help and support as the child becomes more competent and confident (Whitebread & Coltman, 2008). Vygotsky argued learning is influenced by the environment and can be enhanced by social interaction. The internalisation of knowledge and skill can be enhanced by social interaction with an adult or more experienced peer (Sayeed & Guerin, 2000).

Internalisation happens on 2 levels:

1. With help from an adult or peer, learning takes place.
2. The child takes initiative and the adult guides until the child can independently regulate or control the learning himself therefore stretching beyond their own proximity of learning, or ZPD (Sayeed & Guerin, 2000).

The zone of proximal development.

Vygotsky suggested a child can operate at one level on their own, but with the support of an adult or more skilled child, the child can operate at a further level. This, for Vygotsky supporters, demonstrates that children learn better when they are socially interacting with others more skilled than themselves (Whitebread & Coltman, 2008). The ZPD allows a child to learn skills and knowledge which are just out of the reach or capabilities on their own. Adults scaffold their support, reducing this as the child becomes more competent and knowledgeable (Nutkins et al, 2013). The EYFS asks practitioners to foster this practice. With statements such as: "Consider ways to support the child to strengthen and deepen their current learning and

development" (DfE, 2012, p. 3); and to allow all children's abilities to be challenged. "*Find ways to involve children so that they are all able to be active in ways that interest them and match their health and ability*" (DfE, 2012, p. 27).

As with all tools, the use of technology can incorporate this pedagogy of scaffolding, adjusting levels of support to accommodate varying levels of experiences with using technology, and more independence given to children who have had a more digitally rich experience. However, the skilled practitioner would first need to observe their children's current abilities in using technology before deciding on the level of support required for individual children. Just because a child arrives at the setting with a tablet or phone in their hand, this does not mean they are skilled in using technology for creative, collaborative, and innovative purposes. Practitioners need to refrain from making judgement on a child's skill and competence until they have fully observed the child in action; only then can the practitioner begin to give a differentiated and individual level of support for each child.

Vygotsky's views on scaffolded learning, and children learning through social interaction are important when considering how technology can be embedded into provision. It is vital that children are not left alone to engage in technology use, and the experiences are social and co- constructed, embedding sustained shared thinking into the activities, to ensure children are using technology with constructive purpose, rather than simply consuming videos, TV programmes and other passive activity.

Much of Bruner's work in the 1970s is developed from Vygotsky's theories. Bruner described language as a tool of thought, his theory has helped to develop understanding of the importance of language for children in developing flexibility in their thinking, and the ability to construct their own understanding of the world. Bruner believed we search for meaning in situations, not just of our biology, but through the social contexts in which we live. Therefore, children's learning and perceptions sit within the social and cultural contexts of their lives (Smidt, 2011).

This concept is evident in the EYFS framework. A core element of the practitioner role is to create opportunities for sustained shared thinking (Siraj-Blatchford & Manni, 2004). Where practitioners work with the child as co-constructors of the activity's outcome. This process helps develop the child's vocabulary around an activity, develop critical thinking, problem solving and processing skills, through conversations and careful questioning to expand the activity's scope for learning.

For Bruner, this act of identifying teachable moments and utilising them through careful questioning and expansion with provocations such as *'I wonder what would happen if…*' helps develop deeper level understanding. Again, the implementation of this pedagogy is valuable

when children are using technology. Careful guidance from a confident practitioner can help children experience the use of technology in a range of situations, in both the inside and outside classrooms (Withersey, 2021). Technology use, which is carefully incorporated into an activity for research, creation, solving a problem or recording data can support communication and conversations around the activity, developing social skills, speech language and communication, problem-solving skills, creative thinking, and collaborative working.

Learning is about new experiences, being engaged, being in control, repeating to build schemas and memories, building, and linking synapses (Conkbayir, 2022). These are considerations for quality education environments, and technology can be embedded into these activities. Repetitive, freely available, and child led. Learners expand on, modify, and adapt existing concepts to meet new demands. Bruner also conceptualised spiralling, where the learner revisits tasks to build on and perfect skills (Nutkins *et al*. 2013). Children enjoy repeating activities over and over again; re-watching a TV programme multiple times, singing that one song, throwing a toy out of their highchair, or sliding a car down a ramp over and over again. The concept of building schemas and spiralling an activity to build neural pathways and creating synapses (Britto, 2014) which store information to be recalled or modified at a later date, the use of technology must also be seen as a skill in which children need to have multiple opportunities to practice and build competence and confidence; modifying their experience each time, to incorporate new ideas, skills and themes.

Bruner stated,

> "*As a criterion for any subject taught in primary school, whether, when fully developed, it is worth an adult's knowing, and whether having known it as a child makes a person a better adult*" (Bruner, 1960 p. 55).

For Bruner, any subject worth knowing as an adult should be introduced in childhood. Considering how dependent we are as adults on technology, it is arguable that the use of technology is one of the very topics Bruner would include in this statement; to ensure children are not disadvantaged in their digital ability, competency, and skill as adults. Revisiting Papert's (1980) point of technology being fast paced and ever changing, and therefore very difficult to predict (to prepare children for what they will be using as adults), introducing a child to technology in a positive environment promotes a positive disposition to ICT. This is much more important than giving children the opportunity to master technology which will almost certainly be redundant by the time they are adults. However, a positive and healthy culture of technology

that is naturally embedded into everyday provision will equip children to become competent and confident in the use of whatever technology is available during their adult life (Nutkins *et al.* 2013).

The sociocultural pedagogies of scaffolding and spiralling, and the concept of sociocultural tools, and social learning theorized by Vygotsky and Bruner are evident within the EYFS framework. The analysis of how these are applied within the framework shows that to support children in the use of cultural tools and to confidently scaffold learning, practitioners should themselves, be confident and competent in the use of technology. In preparation for this, practitioners should receive adequate training on embedding technology into teaching and learning. The exploration of practitioners qualifications to examine whether there is sufficient preparation for this has steered my research.

Several theoretical frameworks used to understand children's development are evident within the EYFS framework (Hedges & Cullen, 2011), as examined here, social constructivism, social learning, and sociocultural theories, and developmentalism are the predominant theoretical constructs evident in the EYFS. However, it must be concluded that no single theory of child development provides a definitive explanation of how every child develops and learns, or how one must apply a curriculum. A combination of these must be utilised, to fully understand, and plan for supporting children's development. It is important to understand how the EYFS has been constructed, so we are able to apply the theoretical concepts used to a particular element of the framework, such as technology use.

As discussed, children's use of technology is often thought about in terms of the child's chronological age, and in all guidance from around the world, the age of the child dictates how long they should spend using technology, and what types of activity they should engage in (APA, 2019; WHO, 2019). Whereas, as discussed in the sociocultural perspective of children's development, the social world they live in plays an equally important role in how a child experiences technology (Edwards, 2003). Therefore, it is vital that those working with young children are equipped and prepared to offer safe, appropriate, positive, and constructive learning opportunities.

3.4 Working as an Early Years Practitioner in England.

EYPs working in English settings are expected to make use of their knowledge of child development to provide appropriate and stimulating activities that will challenge and engage

young children and support them to meet learning and developmental outcomes. They are also expected to meet the child's physical and emotional care needs (DfE, 2017).

These requirements continued throughout the COVID-19 pandemic. Early years settings were required to remain open during lockdowns in 2020 and 2021 to ensure the youngest children were able to access education and care. As key workers, EYPs were required to continue attending their place of work to care for other key worker children, including medical and emergency services staff, retail workers and others who provided services to keep the country moving. During the lockdowns of 2021 when the government decided to close schools nationally, preschool settings remained open following government guidelines (BBC, 2021). Despite providing this service to babies and children who EYPs had to have close physical contact with, they were not given any personal protective equipment (PPE), nor access to priority vaccination or priority lateral flow testing kits.

EYPs reported heightened anxiety about being required to continue working with children and families outside of their household bubbles, and their anxiety was justified, as research in January 2021 showed as many as 1 in 10 early years practitioners had tested positive for COVID-19:

> "*Based on the findings, Ceeda estimates that around 31,000 staff working in nurseries and pre-schools and almost 3,000 childminders have tested positive for Covid-19 since 1 December 2020*" (Gaunt, 2021, p. 1).

Reports from EYPs described their feelings of angst, terror, and a sense of abandonment by the government during the pandemic (Sleigh, 2021), and longstanding feelings of resentment over low pay, low prospects, a lack of structure for professional development, and undervalue intensified.

Even before the pandemic, working patterns, lack of value for their work and poor pay were contentious issues for the sector. Sector pay is very low, with an average salary ranging from £14,000 for unqualified staff, to £24,000 for experienced, qualified practitioners (NCS, 2021), with hourly rates of pay at an average of £8.50 per hour (daynurseries.co.k, 2021) when the English National minimum wage is currently set at £8.91 per hour (Gov.UK, 2021). The hard work practitioners put into studying above the required level 3 gives no financial reward, and leaves practitioners struggling on low wages. Those who continue their studies to graduate

and postgraduate levels, do so for other reasons, not for the extra financial reward it brings. In comparison, one can gain employment in a supermarket and receive a higher pay per hour; Lidl supermarket pay customer assistants £9.39 per hour (Payscale, 2021) and Aldi pay £9.55 per hour (The Grocer, 2021), with no relevant qualifications needed.

Gaunt (2020) reported that poor salaries, increasing workloads, physical and emotional demands of the job, inability to support their own families on their income, and lack of recognition for the training and work undertaken is forcing practitioners to reconsider their career choices, or take second jobs to supplement their income. The National Centre for Social Research (NatCen) with the Education Policy Institute (EPI) found that an initial passion for providing a caring educational environment for children was usually the incentive for many practitioners to pursue a career in early years. However, the barriers of pay, lack of recognition and a demanding workload are outweighing this passion for the job (Bury *et al*, 2020).

The NatCen research concluded with recommendations to give early years workers the same recognition, including salary, as primary school teachers, and more progression opportunities, which again, would need to be recognised with increased pay scales. These issues continue to intensify an increasing crisis within the EY sector, where recruitment of new EYPs and the retention of qualified staff threatens to collapse the sector and result in many more setting closures (Lawler, 2021).

3.5 Part of the EYP role. Professional learning.

Another part of the role of the EYP is to continue professional learning. As discussed in the introduction, there is no structure to the early years professional learning model in England. In Scotland, EYPs can utilise the national model of professional learning, which identifies key principles and features of effective learning that will build capacity and promote collaborative practices. The model provides a shared language and aspiration for educators, and a framework from which to evaluate the value of professional learning opportunities (Education Scotland, 2019).

The only guidance given to the sector in England regarding CPD or professional learning is the EYFS (2017) which states:

> "*The daily experience of children in early years settings and the overall quality of provision depends on all practitioners having appropriate qualifications, training,*

> *skills, knowledge, and a clear understanding of their roles and responsibilities. Providers must ensure that all staff receive induction training to help them understand their roles and responsibilities. Induction training must include information about emergency evacuation procedures, safeguarding, child protection, and health and safety issues. Providers must support staff to undertake appropriate training and professional development opportunities to ensure they offer quality learning and development experiences for children that continually improves*" (DfE, 2017 p.26).

The early years sector acknowledges the importance of having practitioners who continually update their knowledge and skills (Martland, 2020). However, unlike schoolteachers in England, who engage in 30 hours of training, directed by their head teacher or individual needs to improve outcomes for their pupils (Df|E, 2016) for EYPs, there is no expectation in terms of annual hours for CPD, or what the CPD topics should be. Professional learning should meet the needs of the children and families who use the setting. Examples of this could be professional learning about areas of SEND, or supporting children and families with EAL, learning to use a new method of planning such as in the moment planning (ITMP), or learning to implement new provision such as the curiosity approach. A further area that could benefit the setting may be to learn how to use technology in a more efficient way, or to learn about supporting children's use of technology.

The early years sector would benefit from an overarching model for professional learning. One that could be applied to the individual EYP's annual programme of CPD, or specific topics or themes of professional learning. Rogers *et al* (2017) report early years professional learning that provides:

- Opportunities for reflection
- Peer group discussion
- Regular feedback on learning and performance

is most effective at changing practice and improving outcomes for children. However, there is little research available to compare best practice in early years CPD or professional learning, and training providers will create their own models. The 2014 DfE consultation on *A world-class teaching profession* stated feedback from the teaching profession (for schools) has indicated that the CPD offered to them has variable quality and impact. Teachers evaluated their CPD as attending courses or listening to stale talks accompanied by endless slides (Cordingley *et al*, 2015). Teachers reported their CPD does not meet specific needs of their

pupils, nor is it always sustained, and practice based. There is currently too little robust evidence on the impact of different types of professional development for teachers (Cordingley *et al*, 2015).

From experience of feedback from my tutees, the professional learning environments experienced by SENCOs (special educational needs coordinators) and PANCOs (physical activity and nutrition coordinators) are greatly enhanced by the three characteristics identified by Rogers *et al (*2017) listed above. Once SENCO and PANCOs have completed their initial training, they are encouraged to continue accessing learning materials through academic and industry recognised publications, reflect on their practice regularly and create SMART targets for continued growth, join communities of practice specific to their role so they can communicate and connect with other SENCOs and PANCOs to share good practice and ask questions.

This continual process of reflection, learning and sharing ensures constant discovery. This is similar to the teacher communities described by Vangrieken *et al* (2017) who advocate communities of teachers sharing their knowledge and expertise on a particular subject, as specialists experts. These communities can be a support system and source of learning, rather than short bursts of training that is never revisited. Resources can be brought together, shared, and reproduced to reduce workload (Newman, 1996), and reflection on *what works* can reduce mistakes and poor teaching. The characteristics of teacher communities include:

- Supportive and shared leadership
- Shared values, vision, and goals
- Collective learning and application
- Shared individual practice
- Supportive conditions (Vangrieken *et al*, 2017).

Further, Wenger (1988) describes communities of practice characteristics as:

- Mutual engagement
- A joint enterprise
- A shared repertoire.

These characteristics of teaching communities and communities of practice are evident in learning communities of SENCO and PANCO practitioners and would be an excellent foundation for a professional learning model for the early years sector.

3.6 Conclusion.

In this chapter I examined the early years framework for curriculum in England, outlining how the EYFS evolved from separate frameworks to guide those caring for children from birth to three years, and from three to five years, and statutory guidance which were amalgamated in 2008 into a single framework for all registered childcare providers to follow. I outlined why this framework is mandatory for all OFSTED registered settings, and how practitioners should use this to construct their own curriculum.

I examined how technology has been included in the EYFS since 2008, and how the inclusion of technology has changed to reflect society's use of technology. I examined how the language within the framework has evolved from including technology (or ICT) as a subject to be learned; operational competence of devices and the affordances these devices offer, to learning to embed technology in a multi modal classroom environment. This is an important turning point in the rhetoric of technology use. As noted earlier, as Arnott & Yelland (2020) explained, children are using technology in their everyday lives, and we need to understand how to support this in alignment with the ever-changing functions of technology, but also to embrace technology seamlessly into the classroom, the same as any other resource; pens, paints, wax crayons, junk for modelling, so children have multi modal opportunities for exploring, learning and expressing themselves.

The practitioners who are leading settings need to be aware of the differences here. Practitioners are choosing equipment and planning and setting up provision. They are also modelling the use of this equipment and advancing the learning of children using it. If they are not adequately trained in the importance of multimodal learning, and the differences between technology use for consumption of media, and technology use for creative activities, they may struggle to effectively support this area of children's learning.

I examined the revised EYFS (2021) to highlight the removal of technology from the early learning goals, and from the Development Matters non statutory guidance document. I considered the consultation comments received from early years practitioners involved in the pilot trial, including concerns that, like the removal of some of the maths concepts, such as 'shape, space and measure', this left practitioners unsure of whether they should continue to provide opportunities for learning about these concepts. I analysed the justification from the DfE, and the outcome of the pilot consultations revealed the DfE believe technology should still be present in the early years classroom, but it does not need to be an assessed early

learning goal element. I discussed the problems associated with the removal of technology from the curriculum, in relation to how the inclusion of technology would be measured, how would OFSTED observe the inclusion of technology and how children would be offered fair and equal opportunities for technology experiences from one setting to another.

I considered the concept of a digitally rich background, and how this may give some children an advantage when going into year 1, whereas a child who has had an early start in life with less opportunities to experience the use of technology, or experiences that were not particularly educational, may be at a disadvantage when the national curriculum classes begin which include coding and using technology for a range of purposes. The questions around how practitioners should include technology into their curriculum planning, with no real guidance or structure supplied by the DfE, again comes back to the practitioners having some form of training to give them confidence in making decisions about this.

I examined the theoretical frameworks of developmentalism, socio-cultural theory and social learning to highlight how these are evident in the EYFS, and have helped to shape the EYFS, and therefore are important theoretical frameworks to apply when positing how children learn through using technology. Examining children's development through a developmentalist perspective, namely, that children's development can be drawn upon a timeline based on their chronological age, is the fundamental structure behind the Development Matters guidance. This document serves as a base for practitioners to plot children's development, based on their age, to observe any areas of delay. The (scarce) guidelines given to adults on how much technology should be available for children is always based on the child's age. For babies and children under two, advice is that children should only use technology for digital communications, such as video calls, and children aged two to five years only being advised to have up to one hour per day of screen time (APA, 2019). There are no caveats; it is purely based on the child's age.

The other fundamental theoretical frameworks evident within the EYFS are the social learning and socio-cultural perspectives which underpin the overarching principles of "*children learning to be strong and independent through positive relationships*", and "*children learn and develop well in enabling environments with teaching and support from adults, who respond to their individual interests and needs and help them to build their learning over time. Children benefit from a strong partnership between practitioners and parents and/or carers*" (DfE, 2021, p. 6). Both these overarching principles highlight the impact the environment and the adults around the child have on the learning experience. This also includes the socio-cultural tools available in the learning environment. Here it is essential that cultural tools of technology are included in the classroom, and the experienced adult, the EYP, is confident and competent to model

the use of these cultural tools with the child, scaffolding support and stretching the child's current knowledge and ability using the zone of proximal development.

It is important to examine the changes to the early years framework along it's timeline of use in early years settings, as this mandated document is the underpinning base for creating the early years curriculum, which will impact how children will experience technology in their early years education environments before transitioning into formal schooling with the national curriculum, where 'computing' is a subject of the curriculum (DfE, 2013).

Finally, I examined EYP working conditions and discussed how the recognition and value of EYPs in England is poor. This lack of value is contributing to a staffing crisis, which has increased since COVID-19. Political issues such as the statutory requirement for training, and CPD, but no financial remuneration for this dedication to the job role, and the treatment of EYPs during COVID-19 lockdowns are not recognised and have been ignored for many years. These issues are smouldering in the minds of many EYPs who know they can earn more in job roles that do not require such dedication and commitment.

In the next chapter I examine how teachers and practitioners working under the EYFS with children in early years settings implement technology into their curriculum, and how practitioners view the use of technology.

Chapter 4 Early years practitioner's and teacher's perspectives of the use of technology. Implementing the framework and working within early years.

4.1 Introduction.

In this chapter, I examine the existing body of research on practitioner's perspectives of how they use technology in their role, and with children, and explain how this body of work has informed my research questions and steered my work. In this chapter, I review literature on EYP training and subsequent CPD, and whether there is sufficient inclusion of technology.

To understand how early years practitioners are trained to take up roles in early years education in England, I begin the chapter with an examination of English EYP qualifications, from level 1 to level 6, and how the structure of these qualifications has been developed through government reviews such as the Tickell (2011) and Truss (2013) reviews of early years practice, which inform the qualifications practitioners need to hold to be considered 'qualified' to implement an early years curriculum. An examination of the content of these qualifications reveals a lack of material on supporting children's use of technology or using technology as part of the role of the practitioner.

I then examine accounts of how technology has been included in provision by these qualified practitioners. Contributing factors which help practitioners make the decisions about whether to use technology including intrinsic factors such as their own abilities and confidence, and extrinsic factors such as lack of equipment, funding, and time help to shape their decisions. Finally, I identify a lack of literature available on some of the topics covered in my own research, namely, the voice of the practitioner in relation to their training, giving value to my work within the field of early years practice. The identification of this lack of existing literature is important to awarding organisations who create early years training and qualifications. It is evident that some further investigation is required in this area, to ensure trainee EYPs are receiving a full and rounded experience to prepare them for their role, and this thesis goes some way to filling this gap in literature.

4.2 The framework of early years practitioners training in England.

Practitioners working under the EYFS within English early years settings are counted into a ratio for the number of children they can care for, depending (firstly) on the age of the children. These ratios are calculated by the DfE and are clearly set out in the EYFS statutory requirements. Current ratios in England are as follows:

- Children under the age of two 1:3
- Children aged 2-3 1:4.
- Children aged 3-5 1:8.

These numbers are (secondly) based on the practitioner either being counted within the setting's unqualified staff ratio, or in the qualified ratio, holding a qualification at level 2 or above. Different levels of qualification can change these ratios, for example, a practitioner with postgraduate qualifications in early years, such as early years teacher status (EYTS) or qualified teacher status (QTS) can care for 13 children (aged 3-5). Introduction of this 1:13 ratio in 2013 was a result of Truss's report *More Great Childcare* which examined how European countries such as France and the Netherlands manage their staff ratios. The comparison found that in these countries early years teachers, such as staff with graduate qualifications have higher child to staff ratios.

The Truss report (2013) led to a change in ratios in the UK, based on her belief that allowing those with a higher status in early years training and qualifications to care for more children would allow a reduction in childcare fees, and more choice for parents, without compromising the care and education children received (Truss, 2013). However, Nick Clegg, as part of the coalition Government in 2013 expressed concerns that there was little evidence to show that a relaxation of child to staff ratios would benefit parents financially (Watt, 2013). Despite Clegg blocking some of the proposed changes to ratios (Jozwiak, 2013), the graduate ratio of 1:13 is currently used in settings.

Other criticisms of these changes were that Truss conducted her research with nurseries and organisations which did not fully represent the sector (Joswiack, 2013). For example, when considering the number of children with English as an additional language (EAL) or additional needs who attend a setting. Others expressed fear that the quality of care and education would be degraded (Twigg, 2013). Even today, practitioners cannot see how a gaining a degree and a graduate status makes a practitioner more capable of looking after a larger number of

children and providing the same level of care than a practitioner with a qualification at level 2 or 3. Practitioners often comment on this by stating holding a degree and teacher status does not allow you to grow another set of eyes and arms. (Parenta, 2013).

There are extensive guidelines within the EYFS about practitioners' qualifications, how many qualified, and unqualified staff a setting must have, and the qualifications required for specialist roles such as manager and SENCO (DfE, 2017). The level and quality of supervision and learning opportunities practitioners can give to children depends on the number of children in their care, and the number of children assigned to them in their key group. This is the group of children they are directly responsible for in terms of their physical care, monitoring and assessing of progress, recording activities, observing, and recording these to add data to the child's learning journey document, and communication with the parents and carers, along with identifying, referring and monitoring of any additional needs each child may have.

Being part of the child to staff ratio and having key children is a big responsibility. There are targets to meet for completion of tracking, assessment and recording progress. The key person is expected to know each child's interests and abilities, to plan an environment of continuous provision, alongside focusing on children's interests to provide learning opportunities which interest and engage children (Tassoni, 2010). All these duties require training and experience.

English early years qualifications range from level 1 to 5 in vocational awards. Level 1 is entry level. Level 2 is equivalent to GCSE. Level 3 is equivalent to A level, and level 4 and 5 vocational qualifications are equivalent to level 4 and 5 of a higher education (academic) degree. There are also a range of academic degrees; foundation and undergraduate, masters and doctoral training routes, level 5 to 8 which can be taken in the subject of early years education.

There are a variety of methods of gaining qualifications in early years. Apprenticeships, full time courses which involve college classes and spending hours in work placements, part time courses alongside employment. Vocational early years qualifications at levels 1-5 are awarded by organisations such as NVQ, NCFE CACHE and BTEC, and require completion of a course of study in which the student will complete several units of work, and a set number of hours in real work environments. These qualifications are standardised by the awarding organisation, so a student who graduated as a level 3 early years educator in London will have completed the same mandatory units as a graduate of the same qualification in Devon. Full and relevant level 3 qualifications, as determined by the DfE gives the graduate a licence to practice as an early years educator, and care for children within the ratios set out in the EYFS.

The content of the courses designed by awarding organisations such as (but not limited to) NCFE CACHE, BTEC and NVQ is updated regularly, according to changes in legislation, policy, and best practice in early years. Course content is modified so the qualification meets the requirements of the DfE's full and relevant criteria, to maintain the element of the 'licence to practice'. The NCFE CACHE level 3 early years educator (EYE) standards were updated in 2018, and the level 2 early years practitioner (EYP) standards updated in 2019. Both qualifications reflect changes in requirements such as the need for all newly qualified practitioners to hold a paediatric first aid qualification, and for those practising at level 3, to hold GCSE or equivalent qualifications in English and maths.

This is a step towards improving education for children, who are learning literacy and numeracy skills from these practitioners. Other areas such as methods of observation and assessment are reflected in the new standards of these qualifications (NCFE CACHE, 2019). Yet, within these newly designed courses, there appears to be a lack of content to educate student early years practitioners about using technology, either in the role of the practitioner, or supporting children's use of technology.

An analysis of the qualifications available in England (see appendix 1) reveals within the 14 units of work to be completed for the NCFE CACHE level 2 EYP qualification, there are no knowledge or skills criteria that cover using technology with children. Within the 23 mandatory units students are required to complete for the NCFE CACHE level 3 EYE qualification, there is just one task set; in Unit 3.5WB, criteria 4.1; '*Use strategies to plan activities which encourage digital literacy*' (NCFE CACHE, 2019, p. 57), and one in unit 3.10WB, criteria 2.2; 'Analyse how the use of technology supports the development of speech, language and communication' (NCFE CACHE, 2019, p. 67). One might argue that if practitioners are expected to be prepared for supporting children's use of technology, this is insufficient preparation.

This is an important area to research and gives value to my study. To clarify the content on the use of technology in these qualifications, an analysis of the full range of qualifications available for early years practitioners was carried out, and the results are presented in the findings of this thesis, to illustrate the lack of content in these qualifications to prepare practitioners for using technology.

4.3 Technology used by practitioners in settings.

As Mertala & Koivula (2020) explain, the focus of research on how young children are using technology shifts to reflect the most popular technology of the time. From larger devices such as PCs and interactive whiteboards as the focus of research in the 2000s, moving to smaller mobile devices such as the tablet in 2010s, and in the 2020s, more advanced technology such as virtual and augmented reality, wearable devices, and the internet of things are fast becoming the focus of examination.

Research examines how children are using these types of technology in their everyday lives. However, the focus of how technology is used in early years settings remains under researched. A gradual growth in research in this field is led by prominent academics such as Arnott & Yelland (2020), Siraj-Blatchford (2003), Marsh (2016), Plowman *et al*. (2010) and Ludgate (2018). Studies from educators overseas have helped to bring practitioner's views into the spotlight (Hoffman & Russ, 2012; Smith *et al*. 2016; Hatzigianni & Kalaitzidis, 2018). Further, there are a small number of studies that focus on pre-school early years settings *and* have practitioner perspectives included as a theme. The findings from this research are evaluated here, as they have informed my research in several ways.

Ludgate (2018) examined the affordances of touch screen technology in early years settings in the West Midlands of England. The term affordances, coined by Gibson (1979) describes the relationship between the animal and the environment, and what the environment can offer. In this case, the animals are humans, and the objects in the environment are technology, devices, the internet. So, technology offers affordances to humans. Hutchby (2001) proposed a middle ground between realism and constructivism as the interplay between *essential properties* of technologies, which "*may constrain their uses, and socially determined uses of technology, which are wholly based on the interpretations of those who employ them*" (Willard, 2013, p. 1). So, the term affordances explains not what the technology *is*, rather it explains what the technology enables the person to do (Hutchby & Moran-Ellis, 2001).

For Ludgate (2018), the affordances investigated were those available from touch screen devices to children in early years environments.

Ludgate's research included observations of how children were using touch screen technology, and interviews and surveys gathered practitioner's views about how they felt technology supports learning. Ludgate's study reveals interesting data about how the settings use these devices, and the barriers to use; Three of the most common barriers to use were:

- lack of funding for equipment,
- practitioner's desires to minimise technology use,
- views that technology is used too much at home.

Ludgate's (2018) research highlighted three themes: play, authority, and pedagogy. In the theme of play, Ludgate found that there were discrepancies between how children wanted to use touchscreen devices (for play and consumption of media) whereas practitioners wished children to use these devices for educational purposes only. The theme of authority highlighted struggles of device sharing between children and managing the length of time children could use these devices and struggles of *how* practitioners managed the time children spent on devices. The final theme, pedagogy, highlighted practitioner's (limited) application of pedagogies such as scaffolding whilst supporting children's use of devices. The data yielded in this theme of pedagogies highlights that many practitioners found using technology with children problematic due to their lack of confidence in applying pedagogical practice in this area.

Ludgate employed the ecological systems model to categorise the connections between the setting, home, and wider society, to illustrate how children use of technology is linked to all these systems. This model has been examined and evaluated as a valid model to posit children's technology use. However, I felt that the Actor-Network Theory (ANT) lens would be more appropriate as it gives more range to view the connections back and forth between each system, and the links between humans and machines, and the ANT lens gives more emphasis to the equality of value for non-human actants, therefore aspects of ANT are applied to my findings.

Ludgate's (2018) study informed my research, as I too planned to examine practitioner's views on why they feel technology use is important, or why they feel it should be limited. I wanted to examine this further, to find out if the barriers to technology use would be similar with my respondents, or if there may be variations. I also wanted to examine practitioners' perspectives on links to their training and ability to employ such pedagogies.

Flewitt *et al* (2014) also examined the applications and popular uses for technology in assisting learning. Flewitt *et al* (2014) trialled the use of iPads in 3 settings that did not previously use these devices in the classroom. Findings suggested two main themes.

The first theme showed that literacy and communication, and language skills increased dramatically with the use of iPads, and children who appeared to be less interested in reading from books or paper media developed reading and communication skills at a much faster pace when they were able to use a touchscreen device as their tool. Similarly, Clark & Luckin (2013)

found iPads enhanced learning in the classroom, increasing levels of concentration and engagement. Children were spending longer on literacy activities, allowing deeper level learning to occur. Further, the study found iPads supported 'seamless learning' changes from individual to group or personal to social learning during a learning experience, which involved the tablet.

The second theme found by Flewitt *et al* (2014) was that teachers who were less confident in using these devices and had always shied away from implementing their use in the classroom looked to more confident and experienced colleagues for guidance, mentoring and support. With the guidance of these *expert* colleagues, teachers who had previously actively declined to use touch screen devices were growing in confidence and improving their skill in using and supporting children to use these tools for learning.

Flewitt *et al's* (2014) study informed my research, as I intended to examine practitioner confidence in using technology as part of their practitioner role, and supporting children to use technology, and whether confidence levels affected their choices in offering technology within the classroom. Further, Flewitt *et al's* study highlighted the need for training, in this case by *expert peers*. I wanted to examine practitioners' opinions on whether levels of training affected their ability or desire to use technology.

Basquill's (2018) research which consisted of case studies from four early years practitioners revealed several themes which posed as determining factors on the level and quality of technology provision in these practitioners' settings. Levels of practitioner confidence, levels of practitioner training and support, personal experiences of technology use.

Basquill (2018) concluded a need for teacher and practitioner training to ensure confidence and competence in providing technology as part of the learning environment of an early years classroom. Basquill's (2018) research directly informed my research; the criteria identified by the four participants as potential barriers to providing technology in settings, namely, training, confidence, support, and personal experiences informed the survey and interview questions posed to my research participants. Again, I wanted to explore with my participants if these factors affected their views on practice, and to examine whether these linked with any other barriers, which may be out of their control.

Jack's (2019) research had a multi-phase approach, with 20 interviews with practitioners, a larger scale survey with 335 participants, and finally an action research project with 8 practitioners. Data showed settings had a range of technology devices, including cameras, tablets, interactive white boards, and explored how these were used. Practitioners reported this technology was being used to support the characteristics of effective learning in the EYFS framework. Practitioners reported barriers which were present in supporting technology use,

including lack of training, lack of confidence, lack of time to plan technology use into activities and prepare for this by downloading appropriate apps and making technology safe, a lack of equipment or funding to purchase devices.

Jack (2019) outlined a range of categories to order these barriers. Intrinsic and extrinsic barriers, teacher level and school level, and finally micro and macro level barriers. Jack's (2019) research also covered how practitioners reported using technology as part of their role, in areas such as administration, reporting and recording, assessments and communications with parents and outside agencies. This has informed my research as I wanted to gain insight into how practitioners use technology, not just how they use technology with children as a teaching and learning tool. Further, I wanted to examine how the changes to the EYFS may affect the use of technology, and whether practitioners could justify any changes they may make; the timing of my research made this possible.

Finally, mentioned earlier, was Clark & Luckin's (2013) study which examined the use of iPads in education environments. One of the findings of this study reported using technology for "communication between teachers and students, and school and home easier and more routine" (Clark & Luckin, 2013, p. 2). This was important to my research, as exploring the views of practitioners using technology as part of their role one of my research aims.

The main themes coming from these studies shows a range of factors which can make the implementation of technology more difficult. Extrinsic factors, such as funding and availability of devices and technology, lack of support from senior leadership and management, a lack of time to plan and prepare lessons, activities, or the devices themselves. Further, intrinsic factors, including practitioner hesitancy, personal views, and lack of training or confidence in using technology can make the implementation of technological activities more challenging.

Best practice in early years settings. The role of the practitioner.

The EYFS has historically guided best practice for care, learning and development, of young children and has been the most significant influence of the early years curriculum. There have been supportive documents, such as *Development Matters*, and now *Birth to 5 Matters*. Particular areas of learning have specific guidance within the EYFS. Emergent literacy, emergent maths, supporting physical development, developing social skills all have dedicated content to help EYPs to ensure their curriculum is including holistic support. Further, areas such as emergent literacy, emergent maths, speech, language, and communication, supporting SEND, and promoting physical development have specific training and professional learning

opportunities, courses and workshops offered by local authorities (LAs) to ensure EYPs in the LA can maintain their knowledge and offer the best care (Suffolk Learning, 2022; Essex County Council, 2023; CambsEYC, 2023). However, there are currently no courses, workshops or guidelines offered by LAs to support EYPs to use technology with children. This leaves EYPs with little guidance on what *best practice* in this area is expected to look like.

Findings from the research I have examined suggest technology is best implemented by qualified, confident practitioners who embed technology seamlessly into provision. *Best practice* with technology should look like *best practice* with any other area of the provision. Where the tools, in this case the IWB, BeeBots, tablets, cameras and any other technology available should be used to facilitate play, exploration, experimentation, building confidence and competency in the use of the devices, supporting language and communication skills, fine motor skills, maths, creativity and understanding the world (Nutkins *et al.* 2013).

One example of this may be when a child collects shells on a beach. The child may bring these to the setting to show their friends. The topic of beach shells may bring about discussions of what the shell is, and how it is connected to sea life. The EYP may use the internet to find information about how sea creatures shed their exoskeleton, and pictures to contextualise the conversation for the children. Other resources may then be used such as art and craft activities to explore the patterns on the shells, and story books of the beach may be used to support speech and language development. Within this scenario the EYP chose to use technology appropriately to support learning within a child led theme.

Supporting technology in the *understanding the world* area of the EYFS is important in the sociocultural context. Children live in a technological world, and to deny them opportunity to gain confidence and skill in using technology denies them the opportunity to understand their world. This is in line with sociocultural theorists such as Vygotsky, Bruner, and Bruce. Applying Vygotsky's zone of proximal development to the use of technology places the practitioner in the situation of facilitating the child's use of technology, and later, Bruner's (1960) concept of scaffolding describes the level of support, reducing this until the child is confident and competent at using the app, game, or device. To do this, the practitioner must have a level of competence themselves.

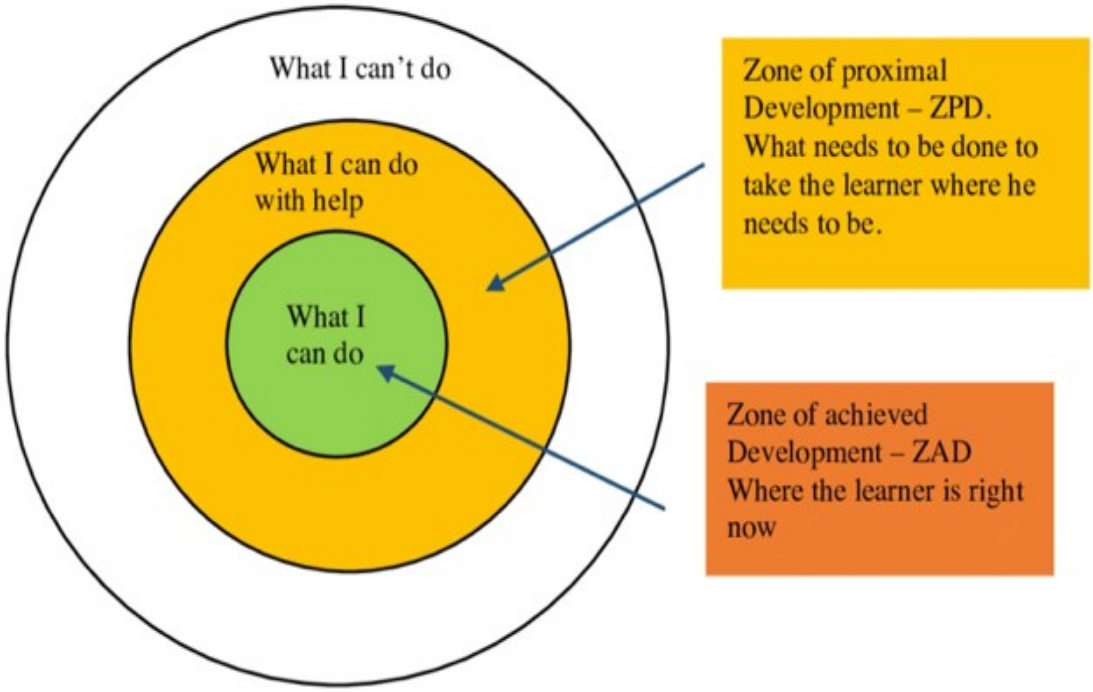


Diagram 2. Illustration of the Zone of Proximal Development (adapted from Vygotsky, 1980).

Within the ZPD, the support may come from either an adult or competent peer, and often children will help each other in the use of technology. However, the practitioner must be available to oversee this peer support, to ensure the child is not teaching the other child bad habits or exposing them to inappropriate material.

Another role of the practitioner in this instance is to support the child to build resilience, should they become exposed to something that upsets, shocks, or scares them whilst online or using an app or game. The skills of the practitioner in being the facilitator, mentor, overseeing peer learning, scaffolding levels of support, and challenging children's knowledge and skill in using technology can only be carried out by practitioners who are themselves, confident, competent, and educated in the use of technology. The studies reviewed in this section highlight practitioners identified levels of confidence and training as the main barriers to successful technology implementation.

How practitioners are facilitating technology use in settings.

Recent research in early years settings focuses on the use of (specifically) touch screen technology (Ludgate, 2018; Sakr, 2018) or how devices can particularly support literacy and mathematics (Outhwaite *et al*. 2018). Arnott (2013) researched the social interactions of young

children using touch screen technology in two preschools in central Scotland. Children were observed using several devices and technologies. Arnott's (2013) findings illustrate how children who are given free access to technology demonstrate peer interactions which the device sharing facilitates. Peer relationships are formed during a shared device experience. Social status is formed and mediated during these group interactions using technology. The social dynamics of a cluster of children, and the matrix of interplay was observed.

These projects focused on specific use for learning, and how children worked in small clusters or groups whilst using devices. However, few studies focus on practitioners' training and understanding of how adopting a pedagogy of multimodal learning (Jewitt, 2006) can embed technology into teaching and learning holistically, to make technology a seamless part of the continuous provision for child initiated and adult led activities. (Siraj- Blatchford, 2003 p.93) suggests;

> *"It would probably be a good idea if the educational technology was integrated into educational activities to the extent that it disappeared, so that it became unnoticed in just the same way as we no longer notice paper and pencils when it comes to writing. We simply take them for granted, and the new technology should probably be the same".*

This, however, is only possible when practitioners are trained and confident in offering this seamless provision.

OFSTED state in their review of computing in the education system that technology and ICT are removed from the latest EYFS, but children will begin to learn computing from year 1. *"Recently, there has been a debate on learning computing in the first years of schooling and the importance of getting it right. Several studies have demonstrated that young pupils are able to wrestle successfully with the core concepts of computing, including more technical subject content such as programming and robotics. That said, it is important that children experience teaching informed by expertise*" (OFSTED, 2022 p.1).

Smith *et al* (2016) surveyed 88 pre-service teachers in Texas, USA to gather their thoughts on the use of technology in classrooms. The study revealed although most participants felt confident in using technology in their everyday lives, they felt less confident in transferring these skills into the classroom environment. The study noted that to ensure these preservice teachers had the skills to utilise their technological abilities, training on how to successfully embed these into the classroom environment was essential. It was also noted that the main

teaching qualifications in Texas did not include content on embedding technology, and that teachers were having to find additional training for this.

Rich *et al* (2019) reported teachers of reception and primary classes described the main obstacle to teaching computing was a lack of technical subject knowledge. The international study found that many primary school teachers were concerned about their own personal subject knowledge and having the required resources to teach computing in the national curriculum.

Koehler & Mishra (2009) discuss traditional pedagogic technologies such as pen and paper have a specific use, being stable over time and unlikely to change. Unlike modern technology devices which can have multiple functions, for example touchscreen tablets can be used for recording, listening, photographing, watching, creating, editing, typing, drawing, tracing, and many other functions.

These are changeable over time, which makes the pedagogical technology 'unstable' in terms of training and CPD, highlighting the need for continuous professional development for professionals who work with technology with children. My findings suggest there is a lack of content in initial training *and* a lack of CPD available for early years practitioners on the use of technology. This notion of 'initial' qualification and subsequent CPD is important in my research. Many practitioners working in settings today qualified ten, twenty, thirty (or even longer) years ago. The changes in technology use are huge, even within the last five years, so I surmise the content of training to use technology in a nursery nurse course in the 1980s or 1970s would have been non-existent. I know there was definitely nothing included in my initial nursery nursing qualification in the early 1990s. This was an integral part of my research; to examine levels of training for technology use in participant's main qualification, and any subsequent training or CPD.

Early years practitioners use technology as part of their role.

Plowman & Stephen's (2005) study in Scotland following a request from the Scottish Government to support the creation of a framework for technology use in early years settings alongside the Scottish early years curriculum, '*A Curriculum Framework for Children 3 to 5'* found when practitioners are supporting children with the use of technology or ICT, they tend to engage in one of 3 practices.

Reactive supervision: Involved leaving children to play with the device either on their own, or in a small group, only becoming involved when the child requests assistance, or the

practitioner feels the need to support, usually when the technology fails and needs to be reset or fixed, or if a disagreement about turn taking or sharing takes place, requiring intervention. Plowman *et al* (2010) also described practitioners' engagement in this way, recommending EYPs expand their active mediation of children's engagement with digital technologies.

Guided Interaction: This requires a practitioner to be present during the activity, asking questions about the actions and content of the game or video; "how many penguins can you count?" and guiding functionality, such as supporting the child's use of the cursor, placing their hand over the child's hand to show them how to move the mouse, instructing minimising or maximising a page, or rectifying mistakes such as closing the page. Plowman & Stephen (2005) found this type of interaction to be time consuming and resource- intense; requiring a child to adult ratio of one to one, or one to two, which is often difficult to maintain when practitioners are (typically) required to supervise 8 children (DfE, 2012).

Hybrid Approach: This type of support involved providing guided interaction to introduce the activity to a small group of children, instructing the children on how to manage the game, and demonstrating the use of hardware, then moving away, resulting in a more reactive supervision approach. As Plowman & Stephen (2005) note, the guided interaction approach does depend on the levels of competency and confidence of the practitioner to be able to demonstrate and understand the use of hardware, the games and videos children wish to use and watch, and since this study in 2005, we can add practitioners need to understand how to use the internet safely and be aware of online risk, as many games and applications used by children today are online.

Plowman & Stephen (2005) also found during their study that early years practitioners were reluctant to engage with children during their time using technology (interactive white boards). Reasons included not wanting to be caught on the camera recording the children's activity with the interactive whiteboard; time constraints, having lots of other formal assessments and group activities to complete; reluctance to engage in children's digital activities.

The descriptions of practice described above require the practitioner to be present, or close by. However, practitioners can also mediate children's use of technology with strategies designed to support flowing use and reduce conflict. Techniques such as those described in Sakr & Scollan's (2019) research in a reception classroom and the use of the interactive whiteboard described the utilisation of a sand timer, to assist children's timed turn taking of the device.

Sakr & Scollan (2019) reported strategies such as this are not used with all activities within the setting. There is no need to have timed use of drawing, sand, water, or the role-play area, adding that this makes technology unlike most aspects of provision (Sakr, 2020) in the need

for mediation. However, those who work in early years settings know that where any resource is limited, such as with particular bikes, scooters, or any resource which is not usually included in continuous provision, strategies to manage timed use can be effective in assisting turn taking and sharing; this is not unique to the interactive white board. These strategies are actively managed by practitioners in a variety of contexts within the setting. Giving children strategies to monitor time and concepts, such as now and next, feature in learning theories related to Piaget's pre-operational stage of development for children in early years settings who are beginning to understand symbolic form. Using visual aids is recommended at this age to help children understand instruction (McLendon, 2011).

Plowman & Stephen (2005) reported practitioners lacked confidence in their ability to monitor the levels of learning taking place from the use of the computers in the setting. Problems with managing turn taking and device sharing contributed to the responses practitioners gave about not wanting to have more technology in the setting. Practitioners also reported that ICT training was limited, as it was not a requirement for the 2005 curriculum for early years. However, there was optimism from practitioners that things would improve in the level of ICT in the early years curriculum.

> *"The underlying tone of this report is optimistic. Practitioners are looking into the future, as our use of the phrase 'Come back in two years!' as the title for this report emphasises" (Plowman & Stephen, 2005a: 33) in (Plowman et al. 2010).*

These comments gave a very optimistic view about the future of technology within the sector however, with the removal of ICT and technology from the 2021 EYFS, it would appear the curriculum is moving in a different direction.

Aubrey's (2014) research found that although early years practitioners agreed that ICT could enhance children's learning, they were less than confident in supporting its use or incorporating technology into their planning (Aubrey, 2014). More recently, Sakr & Scollan's (2019) observations in a classroom with early years practitioners investigated why they do not engage in activities and play using technology. Practitioners responded with answers such as technology is *not that early years-ish* (Sakr & Scollan, 2019), referring to their perception that technology lacks sensory, physical, and messy play opportunities. Others responded similarly negatively, reporting technology limits opportunities for expression. Kewalramani *et al* (2020 p.165) conclude their examination of pedagogical practices by making a

> *"special call to policymakers and curriculum stakeholders to consider the implications posed in this Special Issue. The challenge still remains in the selection of unique digital resources that are meaningful and purposeful for children's learning in developmentally appropriate way".*

This informed my research, as I wanted to examine practitioner views further, to see if there may be links to practitioners' personal views on children using technology, practitioner training backgrounds, and how much technology was offered in their setting.

4.4 Assumptions about the ability of digital natives.

As outlined in the introduction, the term digital native (Prensky, 2001) is often used when referring to individuals or groups of individuals who were born into a time when technology and the internet have always been present. These individuals or groups therefore have never known a world without technology.

Sakr (2020) posits this may be a contributing factor to the levels of mediation and assistance given to young children in early years settings. If practitioners assume children know how to use an iPad, laptop, or other devices, and they do not need assistance, mediation, and guidance for this, they may spend less time in the area to observe, assess and support the child, based on an assumption that every child of a certain age has the same level of ability in the use of technology. This leads to *reactive supervision*.

There have been criticisms of the use of the term digital natives, which Prensky meant for categorising college students, not pre-schoolers (Plowman & McPake, 2013). Although the term is often used to refer to the ease at which children and young people acquire skills in the use of technology, based on the generation they were born into, Smith *et al*. (2018) explain this term should not be used as an assumption that any individual born after 1980 will be fluent in the use of technology.

Smith *et al.* (2018) remind us there are geographical and socioeconomic differences between competencies. Exposure, experience, and the type of activities the child has engaged in are more accurate factors to explain their competency, rather than the decade in which they were born (Smith *et al.* 2018). Further, even those born into the world surrounded by technology may not have the knack for technology (Zur & Zur, 2011).

For Zur & Zur (2011), digital natives fall under three categories. *Avoiders*, those who, even though born into the digital world, do not feel an affinity with technology, and therefore avoid it at all costs; *Minimalists*, those who accept technology as part of everyday life, but engage with it as little as possible; and *enthusiastic participants*, who make up most digital natives. Those who accept technology, embrace it's use and find using technology easy and time saving. For young children, whose exposure to, and opportunity to use technology is controlled by the adults around them, opportunities to experience, and therefore become competent in the use of technology, as one would expect a digital native to be, may be dependent on the adults' constraints such as money, values, and beliefs about children's use of technology, the adult's own experiences, competencies, and abilities to support and monitor children's technology use.

4.5 Discourse around children's use of technology which may affect practitioner's decisions.

The discourse over preschool children's use of technology centres around two polarized viewpoints; those who believe the use of technology is dangerous for this age group, and those who believe it is a fundamental right and necessity to allow children to develop the skills they will need in today's world. These cyber sceptic, cyberutopian narratives (Holloway & Valentine, 2010) argue on one hand that children need to be exposed to, and learn to use technology, as part of the modern world, and that children have the right to experience technology as a tool for learning and preparation for adulthood. On the other hand, children's earliest years should be filled with outdoor play, getting messy and experiencing nature, and technology is hindering this phase of their lives, as an unintended consequence of the ever-growing presence of technology in modern society.

Buckingham (2000) describes the rise in technology in childhood as the death of childhood, similarly, described by Postman (1995) as the disappearance of childhood.

It is individual practitioners, setting managers and owners (as gatekeepers) who decide to what extent technology will be used in their early years setting. These decisions are often clouded by moral panic (Holloway & Valentine, 2010) following media coverage of an incident and can result in inequalities of experience in technology and internet use as children enter the first year of formal schooling. Early years practitioners and setting stakeholders are aware of the polarised views which fuel this debate.

Technology is an essential part of learning and development.

Advocates of *technology as a subject for learning*, and *technology as tools for learning with* promote the benefits, which include fine motor skill development (Bedford *et al.* 2016), hand eye coordination, literacy (Strouse & Ganea, 2017) and mathematical concept development, sustained shared thinking, memory and cognitive skill development, sequential thinking, problem solving skills (Tarasuik *et al*. 2017).

Physically controlling touchscreens has changed how children develop some fine motor control. Studies have highlighted children as young as 6 months old can control a touch screen device to a certain extent due to copying modelled behaviour (Harrison & McTavish, 2016). There is evidence to suggest that the use of touchscreens can assist (rather than hinder) emergent literacy and writing (Neumann & Neumann, 2014) and emergent reading can be assisted by recognition of logos, with the youngest of children being able to recognise app and game logos, and TV show titles far earlier than expected reading age (Kinsy & Bichard, 2011).

These views have changed significantly over the last ten years, from when young children used to passively watch TV. When children watch television or videos, they are mostly passively consuming. Even with interactive shows such as Sesame Street or Mickey Mouse Clubhouse, where the child is asked questions and the TV show is recorded to pause for the child to respond before praising them, they are not involved in the outcome of the show. Newer technology; games, apps, coding, make the child the creator. They have ultimate choice of how something will turn out (Papert, 1980). This can be likened to a classroom setting where a child is passively talked at and given information, and when a child is actively learning through making artwork, creating a sculpture out of clay or matchsticks, learning about weight distribution, balancing and other activities. The child is creating the outcome and therefore understanding more concepts than if they were watching someone else create the piece and describing the concepts to them.

There are modern examples of passive consumption of media. YouTube videos are a very common past time for many small children. One example of this is watching “unboxing” videos (Marsh, 2015). Therefore, it is important young children’s use of technology is supervised, so the intent and impact of use is managed and evaluated.

Preparing children to be successful in their adult life is one of the main priorities of parents and childhood educators. The *Every Child Matters* (2004) legislation states we should support children to achieve five outcomes, including *enjoying and achieving*: getting the most out of life and developing the skills for adulthood and *making a positive contribution*: being involved

with the community and society and not engaging in anti-social or offending behaviour (DfE, 2004).

Technology is used in everyday life, therefore, to prepare children to e*njoy and achieve* and *make a positive contribution*, they should be given support and teaching on the use of technology to become digitally literate and competent adults. Similarly, adults have a duty to uphold the United Nations Convention on the Rights of the Child (UNCRC) (UNICEF, 2019). Phippen (2017) argues that denying children access to technology, for example, with a view that you are protecting them from harm, affects their rights as stated in the UNCRC of Article 12; Respect for the views of the child, Article 17; Access to information; mass media, Article 28: Right to education. Conversely, adults also must uphold Article 19, to protect the child from harm, and therefore the risks associated with technology use must be considered in a balanced way.

Technology and risk.

The debate on the value of technology in children's education and early experiences is often counter acted by those who believe children are at risk from technology. These debates have led to the introduction of the *Online Safety Bill* in March 2022, which aims to make the internet safer for users, particularly the young and vulnerable, who are most at risk from exploitation, and physical and psychological harm. The Bill holds social media platforms, search engines, other applications and website creators and moderators accountable for their content, and requires them to uphold their standards, protect children and vulnerable people, and remove dangerous or damaging content, and investigate it's source. The Bill holds tech company bosses accountable, with quicker criminal sanctions for breaching the Bill (Gov.uk, 2022).

The beliefs surrounding technology use and the dangers this poses are part of what Beck (1986) described as reflexive modernization, where unintended and unforeseen side-effects of modern life backfire on modernity, questioning the very basis of its definition. Beck (1986) addressed man-made disasters, and with catastrophes such as Chernobyl and terrorism having prominence in the news in the late eighties and early nineties, Beck's work, describing these as a global transformation towards societies dominated by the concept of risk became prominent in sociological thought.

The advances in technology are part of modern life. Technology saves us time, money, effort, and makes our lives easier, yet an unintended consequence of technology is the element of risk; using the internet does put us at risk of identity theft, fraud, theft of our money, grooming,

addiction. Overuse of technology can affect our physical and mental health and wellbeing. However, we balance these risks against the benefits. As adults, we make our own decisions about the level of technology we allow into our lives, but for children, these decisions are made by gatekeepers, adults, parents, care givers and teachers.

Radio was the first medium to be consumed by society in the 1920s (Osburn, 2014). Since then, the development of technology has moved quickly. Adults' concerns have evolved to mirror the most popular devices commonly used in family homes and educational environments. From *too much television causes problems with eyesight*, *the use of calculators makes the brain lazy*, *the internet is a place for paedophiles and pornography* (Holloway & Valentine, 2010). All of which have some element of truth, yet as technology advances and becomes more commonplace, it becomes harder to shield children from exposure to technology, and arguably, inhibits their right to learn and experience, and communicate with others. The rights children enjoy offline should also be applicable in the use of technology (Livingstone *et al*. 2016).

The huge rise in smart phone and tablet use, especially in young children under school age raises new concerns. Reduced physical activity and the consequences to physical health (Edwards *et al*. 2012), the effects of nature deficit disorder on children's mental wellbeing (Moss, 2014), overuse and subsequent addiction (Kardefelt-Winther, 2017), negative effects on children's development which affects their bodies in physical (Molloy, 2019) and neurological senses (Feranti, 2016). Further concerns include behavioural issues that develop when parents try to set limits or take away devices, and for children using technology for leisure time at home, dangers such as blue screen tiredness (Akacem *et al.* 2018), sleep issues (Cheung *et al*. 2017) or lacking in the development of social skills through face-to-face interaction (George & Odgers, 2015). These dangers are just from using the devices themselves.

Using these devices to access the internet can pose even more risks, even to preschool age children. Even the most cautious parent will sometimes allow a child to watch an age-appropriate video without constant supervision from start to finish. Even with parental controls set, internet providers and website administrator's filters, disturbing content can be woven into the most innocent and age-appropriate content. One example of this is the recent reports of insertions of the Momo doll into Peppa Pig videos, aimed at toddlers and shared on social media where a scary image would pop up during the video, scaring the youngest children with distorted faces. Media coverage of situations (Waterson, 2019; Roth *et al*, 2020) such as this can cause panic and influence parents and practitioners' views on the safety of the internet for young children.

These situations are often exacerbated by early years practitioners, teachers, and parents' through lack of understanding and training on how to use filters and restrictions to keep children safe online (Holloway & Valentine, 2010). Social media is used, often against setting protocols, to alert parents and colleagues of the presence of a new digital ghost story (Phippen & Bond, 2019), posting notices online to alert parents of this new online risk. This sensationalises the story, giving the phenomena new interest. During 'Momo week' in February 2019, The UK's data on internet searches for Momo related pages rose by 45000% (Phippen & Bond, 2019) simply through media exposure causing panicking parents, carers, and teachers to search for Momo so they could see what they needed to protect their children from.

The risks to children whilst using devices to use the internet include cyberbullying, online grooming, exposure to dangerous content such as pornography, exposure to self-harm sites and violent videos (Bond, 2014). Further, risks associated with data breaches, geo-tracking and privacy are additional concerns which gatekeepers fear when children are online, particularly when a child's surroundings or clothing may give away information about their location (Wyllie, 2021), posing a risk that these digital exposures may lead to physical risks for children being abducted (Caswell & Cramer, 2008).

These risks are real and cut across geographical locations, socio-economic groups, cultures, and religions. Therefore, adults with a duty of care to children's safety are right to be mindful of and to pay due diligence to the risks posed by children being online. However, it is important, through proper information and training that gatekeepers identify, acknowledge, and manage these risks in a sensible and balanced way. As Phippen & Bond (2020) explain, adults have traditionally controlled children's digital, as well as physical spaces, under the guise that they are the experts in keeping children safe.

Adults' control over children's digital spaces, as Jenks (2005) described by developing Foucault's (1977) ideas of *spatial control*, relies on the notion of a superiority, given to adults for protecting children, allows adults to decide, especially with young children, what they experience online, and for how long. It is more difficult to hold this control over older children, who tend to use mobile technologies in physical spaces away from adults. As Phippen & Bond (2020) elucidate with an application of Hutchby's (2001) affordances terminology, mobile technologies such as the smart phone allow the user the affordance of location mobility, so older children tend to move away from adults when online to maintain their privacy.

However, younger children's online practices can be monitored more easily, and therefore younger children's online practices are controlled much more by the adults (parents and education practitioners) who are allowing the online activity. This responsibility requires the

adult to acknowledge, accept and manage the risk to the child, based on their understanding and competence of using the internet safely and sensibly.

In their book; "*Changing Play: Play, Media And Commercial Culture From The 1950s To The Present Day*" Marsh & Bishop (2014) discuss the irony of the media claiming that play, in the traditional sense, of being outside, and being physically active, often with friends is on the decline. Our cotton wool society and parents being over protective of their children and their safety, and decade on decade, less children spend any significant time outside, results in nature deficit disorder (Louv, 2010). Yet it is the media, namely television in the 1950s to the 1970s, computers in the 1980s to 1990s, smart phones and tablets in the noughties, which are often blamed for the decrease in outdoor activities and play; an example of technological determinism (Plowman *et al.* 2010). For practitioners, it appears there is a constant battle to give children the freedom to participate in the use of technology and allow their skills and understanding of this to develop to benefit their learning and future career aspirations yet feeling that they have little guidance to support them.

The UK currently has no official guidance of its own on screen-time for children, and therefore does not have any official recommendations. The World Health Organisation have created a set of guidelines, which the UK has adopted (WHO, 2019), as discussed earlier, these are blanket guidelines, based on chronological ages of children, with no other factors considered. Further, there is still little training or guidance for practitioners.

Educationalists debate that technology should be embedded into the classroom as an everyday resource, the same as pencils, paper and paints are freely available in early years settings. Cyberutopians (the belief that online communication is in itself emancipatory) (Dancheva, 2018), argue that children should be using technology freely, and whenever appropriate, to develop necessary skills in preparation for adulthood, where technology is used in almost all aspects of life. It is believed that technology is changing education, and the COVID-19 pandemic is one example of how technology has allowed millions of children worldwide to continue access to education whilst being locked down in their homes. In Selwyn's 2011 book *Education and Technology: Key Issues and Debates*, Selwyn explored some of these issues, such as whether technology will change classrooms in schools, colleges, and universities, whether technology will replace the teacher, whether technology reduces inequalities in education, and whether technology can reduce the space between education and home. However, there are many practitioners who have views which have been explored in this review, such as technology is overused by children in the home and other settings, or that technology has no place in early years classrooms.

These cyber sceptics argue that technology is taking over all aspects of society, and that children do not need exposure to technology at such a young age (see for example Salazar & Morgan, 2019). This debate is ongoing and will continue to influence practitioner's perspectives on whether technology in early years a positive or negative addition to the classroom is. For Selwyn, technology is not the silver bullet; it will not make education perfect (Selwyn, 2012), but it is a helpful tool to add to the tool kit, and one which should be embraced in our ever-growing technological world.

Every study comes to its own conclusion about whether the use of technology poses dangers or benefits to the child. Most studies conclude this complex question which requires consideration of context. Przybylski & Weinstein (2017) suggest the impact on a child's wellbeing of time spent using technology should best be considered on a curvilinear relationship; that *no time* spent using digital technology often has a negative impact; moderate use often has positive impact, and overuse often impacts negatively.

The terms *moderate use* and *overuse* are subjective and contextual, meaning one individual's moderate use will be different to another individual. This leaves educators with the questions 'how much is too much' and 'how will I know when the child has reached the *moderate use* limit'. Again, with little training and guidance, practitioners may use this is a reason to limit the use of technology in settings, leaving the decision making about use to the parents. As Phippen (2017) notes, gatekeepers (parents and practitioners) are responsible for laying foundations for a child to grow into a rounded individual. *"*If these foundations are not laid effectively, owing to excessive risk aversion, the healthy development of the child may be compromised*"* (p.31).

Practitioners decide whether to offer technology in their provision, and to what extent. It is important that we remember, as Selwyn (2011) points out, that technology is not a topic we can simply ignore, and further research is needed into adult's motivations and rationale behind their decisions to allow or withhold technology from the children they care for.
My research makes a new contribution to this body of work.

Socioeconomic status (SES) of the family and children's technology use.

One motivation, or factor that may affect parents' decision to offer their child opportunities to use technology is the financial ability to provide devices. Historical literature examines links between a family's socioeconomic status (SES) and their opportunities to use technology. Rice & Haythornthwaite (2006) and Tang (2015) reported higher SES families have increased opportunities and devices for their children to use. Becker (2001) reported similar findings,

with 91% of higher family SES children using a home computer, compared to 22% of the lower SES children who had access to a home device. Similarly, Vekiri (2009) reported families with lower SES had less opportunities to explore technology at home, and parents reported having low level confidence in how to support their children in using technology. Literature tends to portray reduced opportunities for children from lower SES families, compared to children from higher SES backgrounds. This means that parents as gatekeepers may have additional barriers to giving their children opportunities to access technology in the home environment. The level of opportunities given to children to access technology at home should be considered by EYPs in a setting, and this steered my research, as I wanted to explore whether EYPs make this home- setting link when considering offering technology opportunities to children.

The academic work and research outlined above informed my research aims one and two, around practitioners' levels self-confidence, their experiences of training and CPD, how confident they feel about using technology, views about children using technology both inside and outside of the setting, and how judgements of others performing within the roles of practitioner and parent influence their decisions. However, some of my research aims have not been covered by the literature review. I have been unable to review any literature relevant to research aims three and four (the aims to explore how changes to the EYFS framework will affect technology use, and how the COVID-19 pandemic has affected opinions and practices of technology use) as there is currently no published research in these areas. This is discussed further now.

4.6 Where there is no literature to review. The revised EYFS, and the impact of COVID-19.

Due to the unique timing of the programme of study, starting in September 2018 and completing data collection in spring 2021, two significant and life changing events (affecting the early years sector) have taken place. I began my postgraduate research journey in September 2018, and although I was aware of one of the changes (the revision of the EYFS framework), and this was one of the motivators for my research, I, along with the whole world was totally unaware of the COVID-19 pandemic that was to sweep across the globe and affect every aspect of our lives. I seized the opportunity to investigate both topics. My research design was still in its infancy at the start of the pandemic, so the investigation into the effects of the pandemic on the use of technology in the early years sector was added.

These two events; the COVID-19 pandemic, which has resulted in significant (temporary and permanent) changes to policy and practice in early years settings, and the introduction of a new, revised EYFS have both resulted in changes to practice, including how technology is used, and therefore make up a large part of the research undertaken in this study.

Due to the timing of these events (the pandemic first national lockdown in England in March 2020) and the creation, trialling, consultations, and implementation of the revised EYFS (2021), there is very little literature available to review on these topics. There has been some data published on effects of the COVID-19 pandemic on children, specifically on how lockdowns have affected children and young people's mental health (NSPCC, 2020), and how lockdowns (resulting in some settings being closed) affected children's ability to learn (IFS, 2020). However, there is no published literature to date about how the pandemic has changed practice in early years settings, specifically around how technology use has changed. This means my data is some of the first to emerge on this subject, making this valuable data for early years policy makers, qualification awarding organisations, and setting owners and managers.

The second event, the introduction of the new EYFS is a very new occurrence. The data I gathered around views and opinions on how the revised EYFS, and changes to the (non-existent) inclusion of technology in the framework is some of the first to emerge, again, making this data important for setting leaders, qualification awarding organisations, local authorities who offer training for their county's providers, and colleges and universities who may be looking at how they can include more relevant topics into their training programmes.

Although this is an exciting prospect for myself as a researcher, that my data will be some of the first available on these two topics, it does make it difficult to review previous research of a similar nature.

4.7 Conclusion.

In this chapter I have examined existing literature, which is relevant to my research aims, particularly aims one and two. I began the chapter with an explanation of how an EYP would train to gain one of the accepted qualifications to be classified as qualified in an OFSTED registered setting in England. I outlined the various levels and titles of qualification and discussed how there is a lack of training on the use of technology within these qualifications. This is discussed later in the findings of this thesis, following a thorough review of the content of these qualifications. I argued that these qualifications are intended to prepare practitioners

for the role of educating children. If part of this role includes supporting children to use technology for a range of purposes, then practitioners should have some element of their studies that includes working with technology. The findings of the analysis of these qualifications will show that there is in fact very little content on using technology, even though these qualifications (at level 2 and 3) were updated in 2019 and 2014 respectively.

All EYPs must follow the EYFS framework to build their curriculum, and until September 2021, this framework included guidance on the use of technology in several areas, and an assessment of knowledge, skills, and competency in the use of technology in the early learning goal *understanding the world*. Practitioners needed to prepare children for this assessment at the age of five years, however, with the revision of the EYFS in 2021, this is no longer apparent, and the changes have sparked questions about where technology sits within the framework now. I examined findings from previous research on practitioners' views and experiences of using technology within the EYFS framework and concluded that there appears to be several extrinsic and intrinsic factors that can make using technology more challenging within the EYFS. Extrinsic factors include a lack of funding for equipment, a lack of support from senior leadership and management, a lack of time to prepare and plan lessons, activities, and the technology itself. Intrinsic factors include practitioner hesitancy to include technology into provision, personal views about children using technology, views that technology is used too much at home, or that very young children do not need to use technology, and a lack of confidence or education in using technology themselves. These factors have informed my research questions and aims, as I wanted to compare my own participants' views, to find any similarities and differences.

I examined literature on adults' personal or intrinsic factors further, such as the influence of the media, including media panic such as that of the Momo doll, and noted that practitioners take influence from a range of sources when deciding on levels of children's technology use.

The literature I have reviewed within this chapter directed and helped to frame two of my research aims. The other two aims (three and four) have been less easy to situate within previous research, due to the timing of my post graduate research journey. The research aims that focus on exploring technology use around the 2021 changes to the EYFS framework, and the effects of the COVID-19 pandemic has had on technology use have no previous literature to review, as they are unique situations, and the data presented in my thesis is some of the first to emerge from these events. As noted, there are published works that report on children's learning during lockdowns, how lockdowns have affected children's mental health, and how practitioners have felt overworked and undervalued, but none has yet focussed directly on the changes in practice, and how technology use has changed because of the pandemic.

On concluding the three literature review chapters, in the next chapter I present the philosophy, ontology and epistemology that leads to a qualitative methodology as the overarching framework for the project, and the design of the research, including my methods for collecting data, positionality, reflexivity, ethical considerations and how the data was analysed.

Chapter 5 Methodological approach.

5.1 Introduction.

In this chapter I outline the methodology and evolving data collection methods which best served to explore the research aims:

1. Explore practitioners' perspectives of the use of technology by children aged 0-5,
2. Examine practitioners' experiences of training and qualifications in early years and how these prepare practitioners to use technology,
3. Investigate practitioners' experiences of using technology during the COVID-19 pandemic,
4. Examine practitioners' views and opinions of the changes to the EYFS framework in 2021, and how these views may affect the use of technology in early years settings.

Methodology refers to how we seek answers (Taylor *et al.* 2016). Although this research explored the views, experiences, and opinions of practitioners, giving them a voice and an opportunity to share their experiences of working in early years settings (ergo, following a qualitative methodology), the data collection methods had to evolve, due to several external factors over the course of the project.

In this chapter I discuss on the philosophy, ontology and epistemology that leads to a qualitative methodology as the overarching framework for the project. I present the chosen data collection methods of focus groups, interviews, and surveys, explaining how the process was conducted reacting to several social and political factors which required a reactive and reflexive working model namely, the national lockdown procedures that were imposed due to the COVD-19 pandemic. I also consider positionality, due to the nature of the study, and my academic and professional background of being a tutor and assessor to EYP students. I outline the considerations of ethics, design, finding participants, and piloting. Finally, I outline the data analysis methods.

Paradigms, or world views.

Researchers bring to their research certain sets of beliefs or world views (paradigms) which shape their research. These paradigmatic assumptions will shape the basis of research epistemology, methodology, and political perspective (Heron & Reason, 1997). The term paradigm (introduced by Thomas Kuhn in 1970) explains the shared generalisations, beliefs, and values a community has regarding the nature of reality and knowledge. Creswell (2007) categorises paradigmatic assumptions into four; positivism, social constructivism (combined with interpretivism), advocacy or participatory and pragmatism. These paradigms are considered now.

Research that seeks to determine objective, statistical measurement will mostly fall into a positivist paradigm. In the positivist- constructivist paradigm dualism, positivist research is shaped from the top down, seeking to identify the big picture for all its components (Kaushik & Walsh, 2019). Research of this nature can be used to study children, often used when examining a wide landscape or cohort of individuals. One such study is conducted annually by the Scottish Government in recording outcomes for children in Scotland defined as *Looked After Children*; the latest study was submitted to the Scottish Government in November 2020 (Gov.Scot, 2020).

The research examined the outcomes for children who fall into the category of *looked after children* for statistical analysis of how their lives may be affected by being in a system of care. Although this type of data can be statically analysed and is therefore helpful for amending and revising policy to support children who may be in this category, therefore be beneficial for their welfare, it is "*stultifying and neglects the human vicissitudes of these children's lives*" (Holligan *et al*. 2014, p. 1). Holligan *et al* (2014) argue this type of research (as a stand-alone source of data) cannot fully illustrate how the experiences of being in a care system has affected the children's outcomes.

A pragmatic paradigm sits outside of the positivist-constructivist dualism. This paradigm claims to bridge the gap between the scientific method and structuralist orientation of older approaches, and the naturalistic methods and freewheeling orientation of newer approaches (Kaushik & Walsh, 2019). It considers practical consequences or *real effects* to be vital components of meaning or truth (Rorty, 1982). A philosophical movement originating from Peirce and later Dewey (Fesmire, 2019), this paradigm asserts that whichever worldview allows explanation of a situation most successfully should be chosen. Described simply as *whatever works*, rather than what might be considered absolutely and objectively *true* or *real*

(Frey, 2018). Pragmatism is popular in research in social work (Kaushik & Walsh, 2019) and education (Morgan, 2014), however, the current research did not seek to mix methods of a top- down approach, mixed with a construction of reality of participants. Nor did it seek to collect both qualitative and quantitative data (Brierley, 2017), so there is no need to take a *whatever works* approach.

The paradigm that is most fitting for the present study is that of social constructivism. A quest to understand the world in which the participants live and work. Subjective meaning is sought from the participants' views and experiences (Holden & Lynch, 2004), and actors play a part in constructing reality around them. Schütz (1962) proposes there is no such thing as a *fact*, and that everything is relative to the constructed experience.

> "*All facts are from the outset selected from a universal context by the activities of our mind. There are, therefore, always interpreted facts, either facts looked at as detached from their context by an artificial abstraction or facts considered in their particular setting*" (Schütz 1962, p. 77).

For Schütz, (1962) the social scientist develops a more strongly formalised and generalised version of the world based on their lived experiences and interpretations of those experiences (Flick *et al*, 2004).

Although a phenomenological paradigm examines phenomena that occur in the social world, social constructionism focusses less on the phenomena itself, and more on how the phenomena is seen, and how knowledge on the phenomena is socially constructed (Harper, 2011). In this thesis, the phenomenon is the advance in technology. I am not concerned with this phenomenon *per se*, rather how EYPs construct their knowledge and experiences of using technology. Therefore, phenomenology as a paradigm did not fit this thesis.

Elements of a participatory paradigm also seep through into this project, as Heron & Reason (1997) explain, the fundamental quality of a participative worldview is that it is self-reflexive. *The participative mind* which Heron & Reason (1997) also term the *post-conceptual mind* "articulates reality within a paradigm, articulates the paradigm itself, and can in principle reach out to the wider context of that paradigm to reframe it" (Heron & Reason, 1997, p. 1). A participatory worldview allows us (humans) to be a part of the whole; to be relative to others within the situation.

When researching groups of people and reactions to a phenomenon such as how technology influences and affects our lives, this seems to be an important view to embrace. However, as I do not currently work in the role of early years practitioner, I am not working with young children in a professional sense, I cannot claim to have collected data *with* participants, instead I collected data *from* participants (Cook, 2012), so although I can relate to the views and experiences of the participants, I was not researching alongside them and reflecting on my own practice in an early years setting.

Philosophy, ontology, and epistemology.

> *"In the choice of qualitative research, inquirers make certain assumptions. These philosophical assumptions consist of a stance toward the nature of reality (ontology), how the researcher knows what he or she knows (epistemology), the role of values in the search (axiology), the language of research (rhetoric), and the methods used in the process (methodology)" (*Holden & Lynch, 2004, p. 16*).*

Ontology.

Ontology is the study of *being* (Silverman, 2010), concerned with *what is*. The nature of existence and structure of reality (Crotty, 1998). Snape & Spencer (2003) describe ontology as the nature of the world and what we can know about it. Ormston *et al* (2014 p.4) emphasise that ontology includes "*whether or not there is a social reality that exists independently from human conceptions and interpretations and closely related to this, whether there is a shared social reality or only multiple, context-specific ones*". When qualitative research explores and embraces participants' views and experiences as multiple realities of the same situation, the ontological assumptions fall under the category of subjectivism and constructionism (Al- Saadi, 2014). The assumptions of subjectivism are that external reality exists but is only known through human experience. These experiences will be different for every individual, resulting in a differing world view for every person. Therefore, there is no shared social reality, only individual versions of it.

Social phenomena are produced through social interactions of actors. Life is defined in terms of experience. The assumptions of constructivism are that humans act within these individual experiences, have effect on them, and therefore play a part in constructing their reality. This is opposed to the objectivist ontological assumptions that reality exists independently of our

experience of it, and that life is defined in measurable terms, rather than inner experiences (Al- Saadi, 2014). When considering the ontology that fits this research, where I am examining participant's experiences and views on a subject, the ontology of subjectivism and constructionism fit best, as every EYP will construct their own reality, including using technology (Pinch & Bijker, 1987) based on their experiences of the world around them, creating multiple realities of the same situation. It is these individual and unique experiences, and the constructs of their employment that shape EYP's decisions and abilities to use technology within their role.

Epistemology.

Epistemology is how we come to know what we know (Silverman, 2010). Epistemology is defined specifically as "how the kind of epistemological assumptions which we make or hold about knowledge profoundly affect how we go about uncovering knowledge of social behaviour" (Al- Saadi, 2014, p. 2). Therefore, if a researcher's ontological position falls into interpretivist and constructivist realms, we are exploring participants' views of their world, how they act on, and effect their experiences, and interpreting their stories. The positionality of a researcher, or where they have *come from*, will affect the ontological and epistemological assumptions (Holmes, 2020). The current study has resulted from over 24 years of working in early years, as a practitioner, and later, teacher of EYPs. The study has grown out of years of observing EYPs, and being in a range of settings and classrooms, viewing the vast difference in provision and use of technology. Alongside this, raising three sons, who have been born into a technologically rich environment, I have also experienced parenting in the digital world. I define my positionality in more detail later in this chapter.

Characteristics of interpretivism include realities that are symbolically constructed with meaning which is observer dependent. For a researcher who engages the world in a value laden manner (subjectively), any theory drawn is situationally and historically specific to a given social context (Brannigan, 1981). Moreover, situations are dependent on the *story* shared by participants. The responses given reflect their life story; respondents share parts of their life, their experiences, and views which are based on situations, learning and decisions they have made in their own life. In Plummer's (1983) work on the sharing of a life story or autobiography, he explains that humanism has been for many years, on the margins of academic work, yet to hear and share participants' views and experiences should be at the heart of this research, therefore, giving it a humanistic component. This is in opposition to the epistemology of positivism, which argues a single reality, existing independently of the

researcher, which the researcher may engage in a neutral manner (i.e objectively), with an emphasis in research of explanation of a situation and control (Brannigan, 1981) can be objectively measured.

Comparing interpretivism with positivism in this way may lead to the assumption of methodological dualism; that I believe there must be different methods of analysing human beings and their actions, to the analysis undertaken in natural sciences (biology, physics, and such), where the world exists independently of individual experience. This distinction that human behaviour is different from any other element of the world because of conscious choice, or praxeology (Mises, 2010) highlights the importance of how it should be studied and understood.

To overcome adopting a dualistic approach, it is important to consider how experiences, thoughts and feelings must be understood through hearing them in context and interpreting them, and scientific experiment should be controlled, tested and fact based. However, as when Chomsky argued that linguistics should be viewed as a science worthy of empirical enquiry, yet a focus on how humans learn language within the context of an environment (Chomsky, 2000), thus merging these two separate entities, I too believe on one hand there should be different methods for analysing the social world and the natural world, but I also believe there are crucial links between human action and the world around that person, in this case, technology; hardware, software, the internet, the classroom, which can affect human action and behaviour.

There are examples in other disciplines such as medicine, where human behaviour can affect the human body's physical structure and health. One example being the lifestyle choice of smoking, and the changes this can have on the structure and health of the lungs and other organs and systems of the body, show where important links are made between the natural sciences and the study of behaviour (Seymour, 2016). For this study, as discussed in chapter 2, to link the study of human action and the world around that person, the lens of ANT (Latour, 2005) helps us understand how every aspect of a situation (human action and object) are dependent upon and influence each other.

A natural progression from an ontology of subjectivism and constructivism, and an epistemology of interpretivism is a qualitative methodology (Raddon, 2020). The next section outlines the methodology this project required.

5.2 Methodology.

An approach to data collection may either follow and inductive or a deductive process. Researchers taking a deductive approach begin with a theory or rule they wish to test. This approach is typically associated with scientific experimentation. A scientific *fact* is tested through experimentation or collecting data to analyse, which either support or contest the original theory (Soiferman, 2010) or determine causality (Gabriel, 2013). One example of the use of a deductive approach is social science research was the study conducted by King *et al*. (2009) who sought to test their hypothesis that law enforcement's response to hate crimes would be less vigorous in areas of the country that had a stronger history of racial violence. The authors created their hypothesis after studying previous research and conclusions and tested the hypothesis using data from hate crime reports and lynching histories. It was concluded that their hypothesis was correct.

My research did not seek to test pre-existing theories, nor did it use a pre-existing hypothesis, as this would not be appropriate when exploring participant's views and experiences.
Therefore, the present study followed an inductive approach.

5.4 Research aims.

An inductive approach to research begins with an aim. In this case it is to hear the views and experiences of EYPs who work with young children. There were 4 specific research aims:

1. Explore practitioners' perspectives of the use of technology by children aged 0-5,
2. Examine practitioners' experiences of training and qualifications in early years and how these prepare practitioners to use technology,
3. Investigate practitioners' experiences of using technology during the COVID-19 pandemic,
4. Examine practitioners' views and opinions of the changes to the EYFS framework in 2021, and how these views may affect the use of technology in early years settings.

There was no pre-existing theory or hypothesis to test. Inductive research works from the bottom up, using the data collected to create a theory (Soiferman, 2010). Allen *et a*l (2011) sought to understand how boys and young men learn about menstruation carried out an example of research that followed an inductive approach. By looking for themes and patterns

across participant's narratives, the researchers were able to develop a general theory of how boys and young men learn about this aspect of girls and women's biology. It was concluded that sisters play an important role in boys' early understanding of menstruation, that menstruation makes boys feel somewhat separated from girls, and that as they enter young adulthood and form romantic relationships, young men develop more mature attitudes about menstruation (Allen *et al.* 2011). The aims of Allen *et al's* (2011) study are similar to my aims, where the focus is thoughts, feelings, views, and experiences.

Methodological assumptions are concerned with the process of research (Holden & Lynch, 2004). Methodology relates to how we will collect the information to know about the world (Silverman, 2010). When positing the methodology of research, often the nature of the research will lead the researcher down the qualitative, quantitative paths (Corbin & Strauss, 2008), with the intention and aim of the research project guiding how data will be collected. Deciding on the data collection design includes thinking about the methodology to adopt. Corbin & Strauss (2008) remind us that becoming obsessed with following procedures and considering how data will be analysed should not detract from the fluid and dynamic nature of qualitative data collection and analysis.

The collection of data, and its analysis should be relaxed, driven by the participants and the data they provide, and not obstructed by strict rules and regulations. It should be within a natural environment, to allow participants to give data in the form of words and stories that are examined for meaning (Denzin & Lincoln, 2005). This was the intention for the data collection for this thesis, however, external factors (namely, COVID-19) became an issue during the data collection stage, and adaptions had to be made, which are detailed later.

Qualitative research gives an insight into perspectives on a phenomenon, giving meaning to complex situations (Holden & Lynch, 2004; Fuller & Petch, 1995). It allows deep exploration of different experiences (Holloway & Brown, 2012). Corbin (in Corbin & Strauss 2008) explained her dismay in the realisation that she could not capture *reality* through research; *all is relative,* and there are multiple perspectives. Qualitative methodology seeks to capture the perspectives of the participants involved; not to explain reality, but to examine *their* reality. Qualitative research allows participants to share their inner experiences and allows flexibility on how meanings are formed (Corbin & Strauss, 2008).

Corbin (2008) expands her description of qualitative research to add certain traits of researchers whose enquiries require the use qualitative research over quantitative research. For Corbin, those who prefer the processes involved in qualitative research enjoy serendipity and discovery. They are drawn to the fluid, ever evolving and dynamic nature of the approach.

Corbin describes those who prefer qualitative research as those who thrive on the endless opportunities to learn more about people and connect with them on a human level.

> *"Qualitative researchers have a natural curiosity that leads them to study worlds that interest them" (*Corbin & Strauss, 2008, p. 13*).*

Qualitative inquiry and methodology have evolved through the developments in history, philosophy, and in how we see our world. The premodern era sought to understand the world through the mind- body dualism, with religion featuring heavily in how people understood and made sense of their world. The modern era, up until the 19th century, favoured scientific knowledge, empiricism and positivism as means of understanding the word and society. Then, through the postmodern era, through the second half of the twentieth century to present day, human participation in the construction of reality has become more popular in understanding our world (Butler- Kisber, 2010). The model below depicts how research has changed through this time.

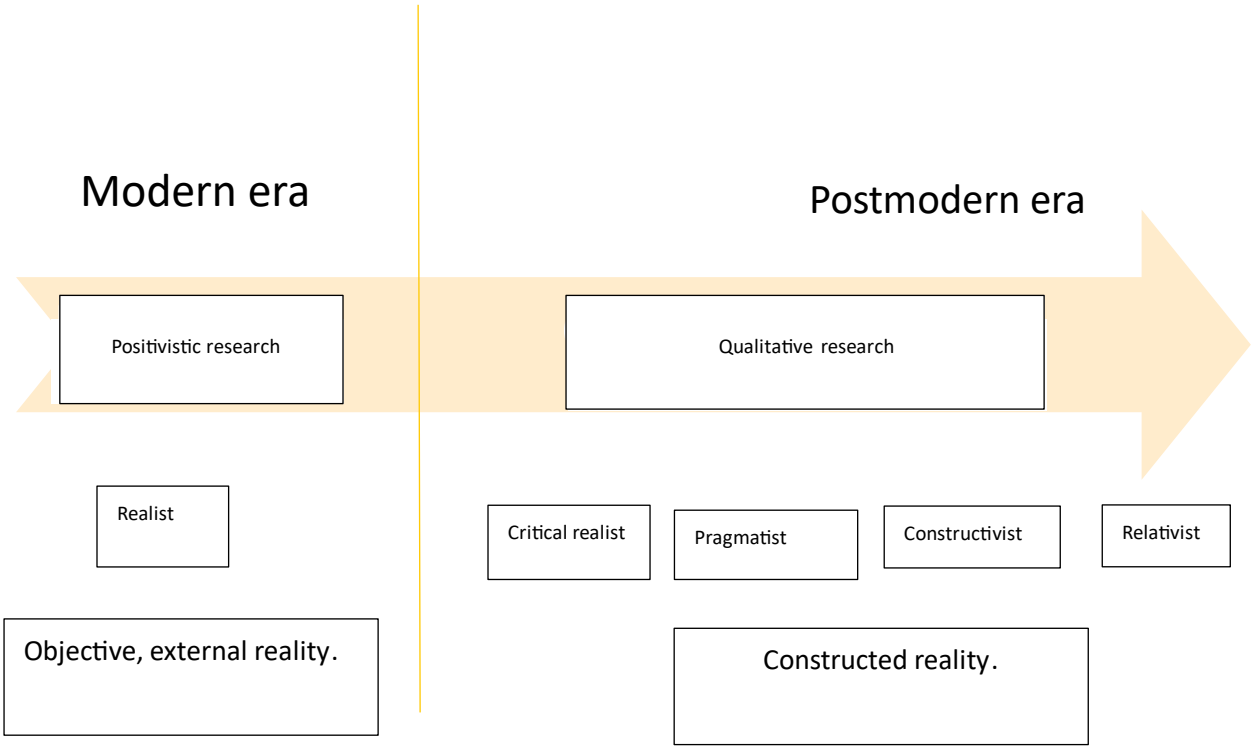


Diagram 3: Illustration of research categorisations. (Butler- Kisber, 2010, p. 12)

The left of this diagram shows a perspective where reality exists outside of human beliefs or understanding. Where inquiry can report *what is*, rather than *how humans interpret* what is. The further along the continuum one moves, the further data moves into human subjective perception of reality and meaning of a situation or scenario.

Those engaging in research in the pre-modern era began to question the existence of objective reality and sought perspectives on the nature of being and of reality. Qualitative methodology has its roots in phenomenological ontology, which seeks to understand the actor's perspective of the world or situation. Their truth is embedded in their personal perspective (Taylor *et al.* 2016). This interest in how individuals construct their reality came from the discovery of works from Vygotsky; "the social, constructivist, and contextual nature of language" (Butler- Kisber, 2010, p. 9).

The very nature of qualitative inquiry brings criticisms; that any qualitative inquiry can never be completely precise. Human beings do not always think, and act logically nor are they always predictable (Holloway & Brown, 2012). However, the subjectivity of the research here can also be seen as a resource, drawing on their own values, experiences, and background to understand the participant and create meaning from their accounts. I believe my own experiences, views, and positionality as a parent of tech aware children, and my long career in early years as an EYP and tutor brings benefits to this research, as discussed later.

> "*It is pretty obvious what people say in interviews, in writing or in their everyday interactions, can differ from what they really think*" (Alvesson & Skoldberg, 2000, p. 202).

One must be mindful that people may not have definite, unambivalent conceptions, values, and attitudes. Interviewer effect, feelings of guilt, taboo or fear may result in dishonesty, even minor tweaks to the truth. This is not to say that data collected through interviews, focus groups or content analysis is not valid, but every utterance and relaying of experience is contextual. "Language does not reflect reality but perspectivizes it, that is, presents it in a special light" (Alvesson & Skoldberg, 2000, p. 202). It is important to consider how to make the participants feel at ease, therefore I examine and deliberate positionality, insider and outsider perspective and a feminist methodology later in this chapter.

The introduction of creative and collaborative methodologies gives participants a voice, challenges and rebalances power relationships between the researcher and the *subjects* (Clark *et al*. 2005; Coad, 2007), and an "emphasis on the importance of democracy, equality,

flexibility and reflexivity in the research process" (Parson & Letherby, 2020, p. 1). My participants are the industry experts in the current time. I have not worked in an early years setting for ten years, and therefore my knowledge on using technology in an early years setting is very outdated. The participants who are currently working and using technology in settings are therefore far more expert than me, and this should be acknowledged through the data collection process.

Placing qualitative and quantitative methodology in juxtaposition, the characteristics highlight how qualitative methodology fit this study best, exchanging large numbers of respondents for a smaller number of participants, sacrificing scope for detail (Silverman, 2010). Qualitative methodology hopes to produce data through which we can understand the lived realities of its participants (Jackson *et al.* 2007). This fits the research aims for this thesis, Where I planned to explore the experiences, views and opinions of practitioners who work with young children daily.

> *"Synonymous with non-experimental and ethnographic inquiry, qualitative inquiry or research has its intellectual roots in hermeneutics, the Verstehen tradition, and phenomenology. It encompasses all forms of social inquiry that rely primarily on nonnumeric data in the form of words, including all types of textual analyses such as content, conversation, discourse, and narrative analyses"* (Jackson *et al*, 2007, p. 23).

In examining methodology, it is important not to forget a *mixed methods approach*. Terrell (2012) explains a mixed methods approach is helpful when the researcher wishes to explore the *if* as well and the *how* and *why*. Mixed methods research typically combines methodologies to collect qualitative and quantitative data, using a variety of methods such as a survey, followed up with in depth interviews or focus groups. Disciplines such as nursing, social work, sociology, and psychology frequently use a mixed methods approach, it can give context to research (Regnault *et al*, 2018) and harness the strengths of each method whilst counterbalancing the weaknesses (Tariq & Wodman, 2013).

An example of research conducted using a mixed methods approach is that of Smith *et al* (2019) who examined the parent perspectives of an interactive knowledge translation tool used within a British Columbian children's hospital. 500 participants carried out an online survey, followed by focus groups to explore themes which emerged from the survey. Using a mixed methods approach here gave the researchers a mixture of quantitative numerical data that

could be used for generalising about the success of the tool, followed by qualitative data which gave an insight into personal experiences.

Although I was lucky enough to receive data from over one hundred participants, and was able to use the data to examine frequencies, such as the frequency of which participants view themselves as *confident* in using technology, or the frequency participants have engaged in continued professional development post qualifying, which might suggest I should have used a mixed methods approach, I did not feel this was the focus of the project, and should not detract from the main purpose which was to gather views and experiences. I have used several methods to collect data in this project, and one could argue that the methods used constitute a mixed methods approach. However, I have not classified my research methods as such, because it was not my intention to collect data that would be seen as qualitative and quantitative from the beginning.

Changes to COVID-19 restrictions and face to face contact meant I had to move from collecting data in face-to-face focus groups to telephone interviews. Then, as I found it increasingly difficult to find participants for telephone interviews, as COVID19 legislation included early years practitioners were keyworkers and therefore working their usual, or often more hours due to colleagues having to isolate, I moved to an online survey to make it easier for practitioners to take part in the study. The varying methods used to collect data were not used with the intention of clarifying or supplementing data collected, this was simply a way of evolving the research to enable me to continue. Although there were a range of data collection methods used, and there is some quantitative data used within the analysis, the focus was still of a qualitative nature.

5.5 Feminist perspective.

A feminist perspective seeks to apply a gender perspective to social phenomena (Alvesson & Skoldberg, 2000) and correct both the invisibility and distortion of female experience to end inequality (Holden & Lynch, 2004). The feminist standpoint highlights science is traditionally conducted almost exclusively by men, with "*imprints of male- orientated assumptions, priorities, foci and even scientific ideas and methodology*" (Alvesson & Skoldberg, 2000, p. 212). Alvesson & Skoldberg (2000) discuss gender related elements to research topics. This project had such gender related topics; the very nature of research with young children (a typically female dominated arena for research and employment) (Baker, 2012), and the use of

technology (research often dominated by males) (He & Freeman, 2009) would suggest possible consideration of a feminist standpoint.

Other areas which could be examined are the underfunding of early years as a sector, and the disproportionately high numbers of women in the profession (in 2018, 93% of those employed in early years were female) (Bonetti, 2019). Considering "the number of women represented in reference lists and empirical material" (Alvesson & Skoldberg, 2000, p. 222) is female heavy in this project reflects the higher proportion of women engaging in research of young children. However, rather than taking a feminist *standpoint,* which can often imply an oppositional or defiant nature, this research adopts some feminist methodology traits, which stress the importance of sensitivity to gender in research (Alvesson & Skoldberg, 2000). These are described now.

Feminist methodology is often characterised by a qualitative approach. Empathy and commitment give validity to the research, and sharing experience makes the participants feel empowered (Holden & Lynch, 2004) and comfortable with the data collection process (Alvesson & Skoldberg, 2000). A mutual relationship is essential to support feminist methodological enquiry, and is the opposite to a cold, clinical experiment situation.

Acker *et al* (1991) argue unless a relationship of trust is developed, there can be no confidence that research on women's lives accurately represents what is significant to them in their everyday lives, and thus has validity. Although Acker *et al* (1991) were discussing research based on women's lives, the values for my research were the same. Participants were not chosen based on their gender; male participants were welcome to share their views on this topic and were equally likely to have been given the opportunity to participate in the study through their employers (gatekeepers), or seeing the research advertised on social media groups however, sadly, no male participants volunteered during the data collection process.

Regardless of gender, all participants were treated with a mutual respect and a genuine desire to hear their views, experiences, and opinions. In sharing this respect for their expertise in the recruitment notices, I felt I was empowering potential participants and made it clear I believed them to be the experts on this topic. These traits of feminist methodology were helpful to adopt during my recruitment and data collection stages.

Critics of feminist methodology claim the situations cannot capture scientific evidence, and there is an over confidence of true or genuine experiences (Alvesson & Skoldberg, 2000). Jaggar (1989) defends the critiques of feminist methodology as being too personal to be scientific, and emotion overruling objectivity, arguing that all researchers and scientists are passionate about their work. Indeed, emotion is an inevitable part of motivation (Alvesson & Skoldberg, 2000). This does not have to interfere with a design which is objective and

searching for truth. If these emotions are identified and acknowledged, and reflection occurs, they do not have to hinder a scientific enquiry.

Although the feminist *standpoint* was not appropriate for this study, as the focus was not about female and male early years practitioners, and the differences this may highlight in their experience, and confidence in using technology with children, nor was it about any hierarchical gender divides within the early years sector, it was not productive to criticise the standpoint. A more constructive action was to learn from and embed the characteristics of the feminist standpoint into the data collection process. Characteristics such as ensuring non gendered language, and removing stereotypes were eliminated from the project (examples being the use of male centredness such as 'him, his, he', and generalising the human population with words such as 'mankind'). As a female researcher, and tutor who embeds equality into my teaching, these are habits I usually follow in my work anyway. These traits are helpful for any academic wishing to produce work that is accessible and agreeable to all readers.

5.6 Legitimising the research.

There are many quality assurance strategies employed to ensure qualitative research is recognised as equally legitimate to quantitative research (Tobin & Begley, 2003; Flick *et al.* 2004). In preparing and implementing this project, the considerations of context, positionality, trustworthiness, reflexivity, and sensitivity were all important to ensure my research was as robust as possible. I will outline how these were considered now.

5.7 Identity and positionality.

Researchers must have situated understanding of their personal and professional identity (Wilson *et al,* 2022) to situate themselves in the research project, make sense of the data and understand the position of the participants. Participants, and the researcher, are immersed in social and cultural context, and these contexts will influence their beliefs and responses. Therefore, it is essential to acknowledge these cultural and social influences as part of the data analysis process. Context sensitivity and context intelligence (Holloway & Brown, 2012) will allow these considerations.

Research ideas come from either personal experience of a situation, or through reading literature about a situation and uncovering a discrepancy or gap that requires further inquiry

(Strauss & Corbin, 1990). In this case, I am positioned within the field of EYPs through my role as an early years tutor and assessor. I am also a mother of three children who use technology. This is my identity in this research.

Part of planning the research involved thinking about my own positionality, and how much this would influence the planning, execution, interpretation, and evaluation of the research (Holden & Lynch, 2004). All researchers come to their project from some sort of position (Punch, 2011) therefore it is important to make the position of the researcher known. It is also important to acknowledge that the researcher is the research tool (Holden & Lynch, 2004); that the study was affected by my actions. I must, therefore, take responsibility for how my presence whilst collecting, interacting with, analysing, and presenting the data would affect the process. For this reason, the first person, 'I' has been used within this thesis (Holloway & Brown, 2012). Reflection and reflexivity are also important aspects of the research process and acknowledging the consequences of one's position.

I conducted my own *positionality map* (Jacobson & Mustafa, 2019), so I understood where I was positioned. The position I bring to this research is that I believe children's moderated use of technology is a positive aspect of their learning and development. However, I believe that children's technology use is often facilitated by adults who may not understand the effects this exposure has on their physical, social, language and emotional development, if not monitored and facilitated correctly. I believe parents and EYPs have little readily available advice on supporting children to use technology, unless one searches online, and then (especially) parents may not be looking in the right places.

The intention of the research is to explore how EYPs are, and can, bridge the gap to help parents, and role model good practice of technology use for children, and support their early learning end experiences of technology in early years settings, despite the changes to the EYFS framework. This 'pro technology' lens that I hold both professionally and personally with my own children, was the catalyst for my research, but it must also be acknowledged and reflected upon at every point of the process (Foulkes, 2022). During participant recruitment, I was mindful not to reveal my own thoughts and feelings, so I did not recruit just those whose views on children's technology use matched my own. During the design of the research questions, I thought carefully about the wording to ensure I was not leading in my questioning. During data collection, I was mindful that during conversation I did not lead the participants with my own views. During data analysis, I was very careful not to just present data from participants whose views were similar to my own. Throughout the entire research process, I was careful to ensure my own viewpoints did not affect the outcome, and these reflections are evident in the data analysis chapters.

5.8 Trustworthiness.

Quality is measured differently in qualitative and quantitative research. When conducting experiments, validity is tested on whether the correct measures are being applied, and whether data being generated is of the correct nature. For example, if a study measuring depression was gathering data on levels of anxiety, validity would be questioned (Heale & Twycross, 2015). In qualitative research, validity is better termed trustworthiness, authenticity, or credibility (Holloway & Brown, 2012) can be assessed through reflection, reflexive practice, audit trails, member checks, triangulation, and thick description (Holloway & Brown, 2012).

What needs to be acknowledged is that:

- You have knowledge, experience, and influence in this field; therefore, all this can influence each point of the study,
- Researchers bring to the research their own perspectives, training, knowledge, and biases which all become woven into the project (Guba & Lincoln, 1998), which can be valued as a resource to bring sensitivity and understanding to the research, adding to authenticity **(**Flick *et al*. 2004).
- As a human your mood at each point in the study can influence the design, data collection, analysis, and presentation (Corbin & Strauss, 2008).

One cannot achieve an entirely objective position. It is important to make the position of the researcher known (Denscombe, 2007). If the researcher can be self- aware throughout the process, and document through reflection and reflexivity, as described in earlier sections, qualitative research can be considered valid, authentic, and credible. Qualitative methods tend to be high in validity, as in this case, my twenty-four years' experience in the field of early years and education, and my reflection at many points on my positionality and biases as a practitioner, observer of practitioners and as a parent give high validity to the study, but the very nature of qualitative research makes replicability and generalizability lower. This is acceptable in academic research, providing these strengths and weaknesses are identified.

5.9 Reflection and reflective practice.

If positionality is what we know, then reflection is what we do with this knowledge (Albany, 2021). Reflection is a thoughtful, self- aware analysis of the intersubjective dynamics between the researcher and researched (Goldblatt, 2016). Reflecting on one's work, either in research, or as a practitioner in industry, allows space to be self-aware, and think about events that have occurred, to give perspective and allow for development. Moreover, not just looking at the situation at an evaluative level but thinking about the situation from several perspectives. Often called *through the mirror* writing (Bolton, 2010), where reflection takes a panoramic view of a situation from the view of the mirror reflection, rather than just a reflection of oneself. This may involve thinking about the experience from the researcher's perspective, the participants' perspective, an onlooker's perspective, and the perspective of any stakeholder. Thorough reflection gives the researcher time and space to discover who and what we are, and how we are conducting ourselves within the research.

For those researching a field in which they are embedded, either personally or professionally, it is difficult *not* to be emotionally involved in the topic. Whilst conducting the initial stages of the literature review, I became very aware of my own views, values, and opinions about how the media portray children's use of technology. Later, during the COVID-19 pandemic there was a wave of media reports about children's practices with technology during home schooling, parents juggling childcare and working from home, and lockdown where children were not allowed out to parks or be out of their homes for more than one hour per day (Bunting, 2020; Purtill, 2020; Bischoff, 2020). There were a few organisations offering practical advice for parents (UNICEF, 2020; BIK, 2020; NSPCC, 2020), however, advice from these sources almost always had an over cautious bias and portrayed overall messages of negativity towards children using technology, often based on minimal evidence.

Furthermore, unless parents actively sought out advice based in scientific research, the only advice they would receive would be from mainstream media which portrayed technological deterministic views of *too much screen time* or the risks of the internet. This type of reporting did not help parents of children who had reduced leisure activities, no interaction with others outside of their home, and a family going through a stressful pandemic situation.

Reflection is also invaluable during data collection. I created short summaries of the process and interesting conversation topics covered by respondents. The first picks of themes, and audio recorded myself speaking a debrief after each data collection session. These reflections hold views and opinions about the experience and the practical elements of the session. How the audio recordings of focus group and interviews are affected by equipment position,

methods used to try and engage quieter members of a focus group without being overbearing and affecting the flow of conversation, how conversations were directed by certain key words or phrases. These reflections helped to improve subsequent data collection sessions. Changes were made in techniques because of reflecting after each data collection session.

This type of reflection is synonymous with Gibbs' (1988) reflective cycle, including reflection on the process, feelings, evaluation of the situation, analysis of how to improve future data collection, and then putting this into action. It is also a valuable part of development as a researcher, refining skills in interview techniques, data collection methods, writing and researching techniques. Dewey (1934) described reflection as a crucial underpinning of growth and learning.

For Schon (1983), there is another type of reflection; *reflection in practice* refers to a type of *on-the-job* evaluation which enables changes to be made whilst working on the research, testing, or experimentation with new practices. Often used in social work, healthcare and education, *reflection in practice* (Schon, 1983) is beneficial for those testing out systems or making changes to care plans. However, as I am not currently planning to make changes as part of my project, and I am not currently practising in an early years setting, the parameters of this type of reflective practice were incongruous to this study.

Similarly, for those working in the field and researching as work continues, the paradigm of *action research* is often selected. Described as researching, working reflexively, and making changes throughout the research process as an ongoing cycle of change (Fuller & Petch, 1995). As Fuller & Petch (1995) describe, the action research paradigm is difficult for non-practitioners to fulfil. Bringing elements of the research into action in a cycle of testing and implementing may appear seductive, it does not fit every project. Again, the boundaries of making changes in the field as part of an ongoing process did not fit this study.

5.10 Reflexivity.

Where reflection is a process, reflexion is a consideration of how the researcher's positionality may affect the research (Aull-Davies, 1999). Reflexion works with reflection; it involves introspection, considering the researcher's normative, social, economic, lifestyle, religious, cultural, and educational background which may influence the research process or outcomes (Ryan, 2005).

Dowling (2008) suggests there are four types of researcher reflexivity. On one end of the spectrum, there are those who simply bracket out assumptions. Next, those who ask questions about their methodological decision making, and think about epistemological decisions regarding research findings. Then, there are those who think further into the political and social influences on the inquiry. Finally, those who embrace the reciprocal reflexivity for both the researcher and participants (Butler-Kisber, 2010).

If my own positionality is to be acknowledged and categorised with Dowling's descriptions, it would be safe to position this inquiry, and my own position towards the latter end of the scale, including consideration of the social and political influences of the situation, along with the reciprocal reflexivity that is between myself as the researcher; being an EYP and tutor, and a parent of young children, and the participants of the research a colleagues, students and those I have worked with. Maxwell (1996) suggests short, concise statements addressing questions of who I am, the beliefs I hold and how these might influence the work, and how I will account for these are beneficial in attending to assumptions, questioning whether the researcher is unduly influencing what is transpiring and monitoring contextual or social dimensions that may have an impact on what is happening. It is a *dialogue with oneself* to support critical and balanced inquiry (Butler-Kisber, 2010).

Reflective statements appear throughout this study, to acknowledge and take responsibility for my position within the process, and how situations may have been influenced by my position.

Insider and outsider positions.

The insider's (or *emic)* perspective (Holloway & Brown, 2012) assists in seeing a situation through the eyes of the participant, from their point of view. Harris (1976, p. 336) claims; "*The way to get inside people's heads is to talk with them, to ask questions about what they think and feel, and this is what the qualitative researcher does".* Language and tone are important in this. Participants will be aware of your 'emic' or 'etic' (or outside) perspective based on the language and tone used during the data collection process. Working with an emic perspective, showing participants you are *one of them* and *one with them* helps to reduce anxiety and assists in data collection by using familiar language (Markee, 2012).

I was aware of the language used within questions posed and was mindful of using current and correct terminology when discussing issues such as the EYFS, the *Early Learning Goals*, the areas of learning and development, and the characteristics of effective learning. I was aware that without using such terminology in questions and subsequent discussion, that

conversations may not have been fluid; that using correct terminology may have eased anxiety of practitioners about the questioning process, as they hear terms they are familiar with and understand, which helped them to select a response to the question. I felt this also gave participants confidence in the validity of the research. Having a researcher with no knowledge and experience of this framework would have raised questions about the legitimacy of the research and the researcher. Oakley's (1981) analogy of interviews and marriage stresses there are many similarities in these two processes; that many people agree to and experience them; the general constructs of the process are the same for everyone, but behind closed doors, the process is very different for, and unique to the two people involved.

Interviews, like marriage, need to be worked at, moulded, and adjusted to fit the situation, and require both parties to be engaged, involved and comfortable. Unlike the traditional view of an interviewer gaining information from a participant, with the power firmly with the interviewer, feminist interviewing involves empathy, a two-way level of understanding and appreciation for the process. The process also requires an interviewer who is trained in leading interviews to put the interviewees at ease.

Although some define the etic approach as being opposite in the sense of a more scientific approach to research, rather than an opposite in terms of an outsider to the field (Kottak, 2006), it can be helpful to use these terms to differentiate the researcher's role in the various situations one finds throughout the research process. It is sometimes necessary to take an etic perspective, to assist with the data collection process and keep data collection on schedule. Getting too involved in conversation as an *insider* can sometimes take conversations off course and prolong interview times.

I had to remind myself of this during a few interviews. An example of reflexivity in action (Goode, 2019) occurred when I had two interviews booked in succession during one morning of data collection. The first interview was a truly enjoyable and informative discussion with a very experienced and knowledgeable practitioner. As much as I enjoyed discussing the topics with her, and learning so much about her experiences and views, I had to be mindful of time so as not to keep my second participant waiting. I was caught between a fantastic conversation with the first interviewee and upsetting or annoying the second interviewee (who had taken time out of her working day to help with my data collection).

Unfortunately, I had to adhere strictly to the interview plan and questions, to maintain time schedules to keep both participants happy. I had to consider what Puwar (1997) describes as a struggle when collecting data in interviews between the feminist traits of conducting an interview in a warm, cosy, and in the manner of a sisterly exchange of conversation (Oakley, 1981), and adhering to social etiquette; during this example, the etiquette around time keeping.

A further consideration on insider and outsider position is how the researcher's position may change during certain situations. For example, when going into an early years setting to carry out an observation of children using technology. The researcher goes into the situation as a researcher, to sit and observe as an outsider. However, if a child asks for help, for example sounding out a word or finding a game on a tablet, I may return to EYP or parent role, most parents or experienced early years practitioners will naturally help a child who asks for assistance; it is part of the nature of caring which is embedded in both these roles.

Remembering to switch back to researcher mode to continue with the observation is often a difficult part of being in the environment, especially if the child has accepted and involved you in their game or activity. This is something I have experienced many times in my professional job role, visiting settings to assess students in their work placements. To exclude yourself from an activity or game that you have been invited into by a child, some of whom may not always take kindly to strangers in their environment, can feel unnatural, but there is also that worry that you may be missing valuable data for your research every second you are not observing your participants.

5.11 Sensitivity.

Sensitivity stands in contrast to objectivity (Corbin & Strauss, 2008). It requires consideration of the setting (in the field) to allow participants to feel comfortable, as opposed to being placed in a laboratory situation (Holden & Lynch, 2004), and for the researcher to put themselves into the research process and situation. "*Sensitivity refers to a personal quality of the researcher. It indicates an awareness of the subtleties of meaningful data*" (Strauss & Corbin, 1990, p. 41).

According to Strauss & Corbin (1990) to conduct research sensitively, the researcher must become attuned, to have insight and be able to pick up on relevant issues, language, tone, facial expressions of the participants to become fully immersed in and respond to the data collection situation. All traits that support a feminist methodology (Handforth & Taylor, 2016), and later the dataset. It is obvious that having a background knowledge of the subject area makes this easier and being of an *insider position* makes this easier.

Having this background experience makes analysing the data easier also. We are not forcing our ideas onto the data, but being able to respond to the data, having the mental capacity and ability to receive these messages the data is sending. It also allows the researcher to remain focussed on the planned topics are, rather than being bogged down with data that is not relevant to the questions.

Practitioners' views are embedded in their own environment. One practitioner's view on whether a child's screen time is excessive will be different to another. There are influences that may guide these views. Government guidelines and advice, media stories and reports. Each adult in the role of gatekeeper to a child's technology and media exposure must make decisions based on individual circumstances, including the child's age, other experiences the child has been involved in, the child's personality and resilience and mental and physical capabilities. Being sensitive to these factors, and not judging practitioner decisions is vital to ethical data collection. Adopting a sensitive nature during data collection becomes easier when the researcher can relate to participants. For this research, participants were early years practitioners. This allowed me to be sensitive to their responses.

5.11 Design.

The design of any research project is informed by the methodology and research question(s) (Flick, 2018). Once these are established it is vital to plan to research in an ethical and structured manner. Qualitative research can often be unpredictable (Sibley, 2004), however there are some parts of planning that must be meticulous, particularly the considerations of how you will protect your participants. In this section I outline how I planned to conduct the research ethically, how I recruited participants, and how I collected and analysed the data.

5.12 Ethical considerations.

When conducting research with human participants (Silverman, 2010), every care should be taken to ensure their wellbeing is maintained before, during and after the process. Researchers can be become blinded by enthusiasm, putting themselves at risk to gain their data (Silverman, 2010). Completing ethical considerations paperwork and satisfying the University ethics committee can be a lengthy process, but it is vital post graduate research students are guided by university protocol which is designed to protect the dignity and safety of researchers and participants (Corbin & Strauss, 2008; Holloway & Brown, 2012).

The ESCR (2010) key principles for conducting research are:

- Ensuring integrity, quality, and transparency
- Supplying full information about the aim and use of the research

- Ensuring confidentiality and anonymity
- Organising voluntary participation free from coercion
- Avoiding harm to participants
- Guaranteeing the independence of the research and the researcher (ESCR, 2010 cited in (Holloway & Brown, 2012, p. 58).

There are many codes for ethical research, all of which tend to agree on some general principles:

- Voluntary participation
- Protection of participants
- Assessment of potential benefits versus risk to participants
- Obtaining informed consent
- Not doing harm (Silverman, 2010).

The University of Suffolk's ethics committee required a detailed application before the initial research was conducted (see appendix 2). Second wave data collection required a further application, and due to COVID-19 lockdown restrictions, changes had to be made to the data collection methods. Notification of these changes had to be agreed by the committee (see appendix 3) The application covered how I intended to minimise risk of harm to participants, and to myself (Holden & Lynch, 2004), and how I would ensure anonymity and confidentiality during the data collection, storage, analysis, and deletion of data.

Informed consent.

Participants can only give consent if they are aware of what the research intention is, how their information will be collected, stored, and used, and how they can withdraw their participation, should they change their mind (Holden & Lynch, 2004). Informed consent is the most important aspect of a participant's power balance and reduces deception during data collection (Holden & Lynch, 2004). This study sought informed consent through relevant methods. The online surveys were designed so participants had to read a briefing page (appendix 4) which outlined the intentions of the data collection, how the data would be used and stored, and their rights and responsibilities as a participant. The respondents had to tick to give their consent before they could enter the survey.

For the focus groups and interviews, participants were either given paper versions of the briefing sheet or emailed a copy before the arrangements were made for data collection (see appendix 5). Focus group participants signed a paper version of the consent form, but due to COVID-19 lockdown, changes were made to the process of collecting data, and interviews were conducted via telephone. These participants were emailed the briefing sheets a week before the interview and gave consent via telephone (recorded as part of the interview).

Participant briefing and consent forms.

Participants need to be briefed on the research. Silverman (2010 p.59) explains "your research needs to be fully described in a way that the people concerned can understand". Consent can only be authentic if the participant is fully aware of the process and their role before, during and after the data is gathered (Butler-Kisber, 2010).

The briefing sheets given to my participants (see appendix 6) gave information on the intention of the research, participants' rights, including their right to withdraw their data, and responsibilities. The briefing sheet detailed my contact details, the University contact details, supervisors and ethical committee details.

The brief then explained how, as a post graduate research student, I had undertaken training and guidance on how to conduct research ethically. The following section read as a letter to the participant, explaining the aims of the research, their rights and responsibilities as a participants, how their wellbeing had been considered, how data would be collected, stored, used and disposed of, how confidentiality and anonymity would be managed, how to withdraw their consent, and finally, how to participate. At this point participants were given the choice to participate or not; if they made contact with me and arranged a date for interview, or if they clicked "I agree" on the survey, they were agreeing they had read the brief and were happy with how the research was planned.

For the online survey, clicking "I agree" was the consent, however, for the focus groups, written consent was sought at the beginning of the focus group, see appendix 5. Telephone interviewees gave verbal consent (audio recorded) at the beginning of the interview.

Fortunately, in this research, informed consent was straight forward, and participants were able to be fully informed of every aspect of the research, so their *informed* consent was full and legitimate. There are some types of research where this is a grey area. Soble (1978) argued that in the past quarter century (since he wrote the paper) in medical research, many participants may be deceived as part of the plans in which participants could not be fully

informed of the research without affecting the data, for example, where placebos are administered, or the research could not be fully disclosed to participants, and even in social psychology, around 38% of research was conducted in ways where considered *deceptive*.

There are many examples from around this time of social science research which are considered unethical. Milgram's 1961 *willingness to obey* electric shock experiments, the 1960s Bobo doll experiments (Jarrett, 2020), Harlow's rhesus monkey experiments (Harlow, et al, 1965). More recently, there have been cases where research in social science has been considered unethical and harmful to its participants. The 1983 UCLA schizophrenia experiments, the Facebook experiments of 2012 (Vyas, 2018), and even research which informs legislative changes (Bailey, 2012). However, the briefing information for my research was full and true, ensuring participants' consent was authentic and valid.

Fairness.

During the research process, care was taken not to further marginalise those who are already in a marginalised position (Holden & Lynch, 2004). When recruiting, participants were chosen via the methods discussed later, but providing they met the criteria, namely, they were a practising early years practitioner, all participants who volunteered to take part were accepted. No categories of gender, cultural, religious or lifestyle choices were considered. These were not relevant to the study. Fairness was achieved through this method, upholding the validity of the research.

Fairness and participant welfare was considered. Participants were all adults, so no extra considerations were required for research involving children. NHS approval was not required. No participant was considered vulnerable, nor lacking capacity to give consent. However, considerations were planned to reduce or eliminate barriers to participation, such as language barriers, where an interpreter would be sought, or sensory barriers, where alternative methods of data collection would be chosen.

Data collection venues were considered both for convenience, and participant comfort. The online surveys were conducted in physical environments chosen by the participants. It was presumed the participants chose an environment they felt comfortable in. For the focus group data collection, early years practitioners were gathered at their place of work. Careful planning with the manager of the setting ensured the focus group was planned at a convenient time. The single focus group I managed to complete before COVID-19 lockdown occurred after a staff meeting, so practitioners were already gathered. To maximise comfort, I insisted the group

had a comfort break after their meeting, and I provided drinks and snacks for them, as I was aware, they were being asked to stay a little longer than their usual meeting. All practitioners were invited to decline if they felt too tired after their working day. No one left, and the whole group agreed to stay. These considerations are fundamental aspects of planning safe research (BPS, 2014).

Having to change the data collection method due to the COVID-19 restrictions meant changing to telephone interviews. Participants chose the date and time for this, giving them choice to fit the interview around their other commitments. Some participants were at home due to furlough, some were still working, caring for keyworker children. Some participants planned the interview on their day off, and some were given permission by their managers to be interviewed during their working day.

Participants chose when the interviews would take place to ensure the process did not affect their day. Participants were advised the interview would take between 45 and 60 minutes, so they could plan when would be the most convenient time for me to call them. I used a mobile phone to call them, ensuring my number was blocked. Participants had been sent the briefing sheet and questions prior to the appointment so they could be fully prepared for the interview and knew the day and time I would call. They were informed the number would display on their phone as *unknown*. Due to the nature of telephone interviews, and the freedom mobile phones afford us, participants were able to choose the location they were in to accept my call.

Participant's right to withdraw.

Making participants aware they have the right to withdraw their data is an essential part of informed consent (Shenton, 2004). The participants in this study were informed they would be able to withdraw their participation up to one month. This was to allow participants to reflect on the experience and change their mind (Edwards, 2005). Participants were made aware that after 30 days, due to the anonymising of data during transcription and analysis, it may not be possible to recognise their data, making removal of their data impossible. This was detailed in the ethical approval application, and the ethics committee were satisfied this was sufficient time for participants to change their mind. Participants were given my email contact to enable them to withdraw their data. No participant chose to do this.

Confidentiality.

One of the most important factors in planning for confidentiality is to ensure the identity of participants is not compromised (Lofland *et al.* 2006; Silverman, 2010). This is often fulfilled through pseudonyms. This assurance is important for participants, who may be discussing very personal issues, or issues relating to their employment. The considerations of confidentiality were clearly set out in the briefing sheet, explaining how the research would keep all names, setting names, and other identifying information confidential, and who would have access to this. As part of the consent process, participants read these conditions. Once data was transcribed, participants were known only as interviewee 1 or survey respondent 1.

During data collection, the only instance where confidentiality may be broken should be the occurrence of a disclosure or concern about the wellbeing of the participant or any other individual, particularly a child or vulnerable person (Silverman, 2010). Careful consideration of a safeguarding protocol was included into the ethical considerations, should a disclosure or concern have occurred. Suffolk Customer First procedures were researched in preparation for such a situation (Suffolk.Gov, 2020), and details of my duty of care to report and concerns to Suffolk Customer First were included in the briefing sheet. Fortunately, no safeguarding concerns arose during fieldwork.

Anonymity.

Alongside confidentiality, anonymity gives peace of mind to participants, that their protection is considered paramount by the researcher. Upon completion of transcription, names and other identifying data was removed, and code numbers given. These codes feature within the discussions and data analysis, rather than participants real names. Confidentiality and anonymity are vital to protect participants from potential problems associated with discussing their employment and experiences of their workplace. Real names and setting details that are disclosed during presentation of the research could have consequences for the participant, and the setting's reputation. One of the most famous examples of consequence of breaches of anonymity and confidentiality is described after Ellis' (1995) ethnographic research for writing the book *Fisher Folk*. Towns folk recognised their characters, and that of their neighbours and felt their data had not been protected sufficiently, leading to strained relationships within the town, and a sense of distrust and disappointment to the researcher (Kaiser, 2009).

To fulfil ethical obligations, all research conducted with human participants should protect the reputation and identity of individuals, and their employment setting, not only for the benefit of the participants, but also the reputation of the researcher.

Storage of data.

Once data was collected, in accordance with University of Suffolk policy, and GDPR principles, audio files and transcriptions were uploaded to Google Drive; a password protected cloud storage system, with single access for the researcher. Original audio recordings and word documents were deleted from the devices.

Managing risk.

Part of the ethical planning involved identifying risks to participants and the researcher and arranging methods to minimise or eliminate these. The University of Suffolk ethics committee documentation allowed extensive consideration on how to minimise risk to the participants and researcher. The identified risks were that participants would feel under pressure to participate if they knew colleagues were a part of a focus group. This risk was reduced by clearly explaining that participation was voluntary, and there would be no negative consequences for not agreeing to participate. Secondly, there were risks identified around the right to withdraw consent. Again, this was clearly explained in briefing documents which all participants were issued with before the data collection took place, and time given to read and understand their right to withdraw their data should they change their mind.

Risks of participant comfort and becoming distressed were identified. These were managed by explaining that during face-to-face sessions, participants would be in the comfort of their work environment. Refreshments were brought to the setting for comfort, and comfort breaks were scheduled. Participants were encouraged to leave the room if they needed a comfort break during data collection. For participants giving data via telephone or online, the comfort would be assumed their responsibility as taking part was on their time and in the comfort of their home or workplace.

Wellbeing checks were regularly undertaken during telephone calls to monitor respondents' comfort levels. A risk for face-to-face focus groups was identified with the researcher entering the setting of participants. This was managed by ensuring my DBS certificate was shown upon entering the setting, and data collection was conducted at a time when children were not in

the building. Setting policy on not taking photos or video recording during these sessions was upheld to ensure no data displayed about children could be captured.

Safeguarding concern risks were managed by giving clear instructions on the briefing sheet that if the researcher became concerned about a child or vulnerable person during the data collection process, the Suffolk safeguarding protocols would be followed to report any safeguarding concerns to the Suffolk Multi Agency Safeguarding Hub (MASH).

Finally, risks of data breach or data leaks were considered. These were monitored and minimised by ensuring the data collected was always kept with the researcher, and stored on a password protected storage cloud, only accessible by the researcher who performed all anonymising, transcribing, note taking and analysis of data. Anonymous data is to be kept on this cloud storage until it is deleted once the project is fully complete.

Data linkage.

As part of the brief for participants, information was given about how the research was designed to keep data confidential, and participants' and setting identity anonymous. However, to fully inform participants about the potential risks to their participation, *data linkage* or *deductive disclosure* (Kaiser, 2009) was explained. In this instance, there is a small risk that due to information given about a setting or practitioner, a reader of the final thesis may be able to deduce an individual's identity, based on prior knowledge about a participant or setting. This is a small risk, but one which participants must be made aware of. On agreement of participation, and acknowledging the information given on the briefing sheet, it was presumed all participants made the choice to continue as part of the study, knowing this small risk was present.

Participants.

Data collection (mostly) requires participants. Part of the planning of any study includes decisions about how to choose participants. Considerations include participants who are accessible, willing, and able to give their data to the study, and who will have valuable information to share which is of benefit to the study (Silverman, 2010). Recruiting participants requires consideration of how to select those who will be included in the study (Fuller & Petch, 1995). There are a range of considerations, and the situation and design of the project will often determine how participants are selected.

Purposeful strategies used in qualitative research can relate to events, setting, actors or artefacts (Holden & Lynch, 2004). As a situation changes, and a project evolves, so too might the recruitment strategies, as within this study. Social situations such as setting closures due to COVID-19 lockdown changed how I recruited participants, changing the study as a whole project.

The first wave of data collection was planned to investigate practitioners' perspectives on the use of technology and the upcoming changes to the EYFS. To achieve this, consideration was given to the way in which data would be collected. A personal, face-to-face technique was chosen, and a collective focus group method was perceived to give practitioners confidence with the aim of instigating discussion. This reduced the geographical area for selecting participants. I was not able to guarantee I could travel outside of Suffolk due to family and work commitments, so a geographical parameter of the county of Suffolk was chosen. This placed the recruitment strategy into criterion, as participants must be an early years' practitioner, and work in Suffolk, and convenience, as I was attempting to save time, money, and effort, at the expense of a wide breadth of participants which aids credibility (Holden & Lynch, 2004). Convenience recruitment is efficient, effective and allows maximum response within the criteria (Moshin, 2016).

Once settings were closed to outside visitors due to COVID-19 lockdown, my recruitment for participants for the focus groups, of which I had completed only one, had to be changed. I was unable to meet with groups of practitioners face-to-face, so individual telephone interviews were chosen to continue with data collection. This was a challenging set back, but one which, as a reflexive researcher I overcame to allow data collection to continue. Again, this changed the recruitment capability. I had to draw on contacts from both my university and professional capacity, adopting criterion, opportunistic and snowball recruitment (Holden & Lynch, 2004) as I asked my contacts to ask their colleagues if they would be willing to participate.

Snowball recruitment is an effective method for gaining respondents, and using contacts to gather new participants, especially if circumstances restrict gaining new participants via other means (Sharma, 2017). It can be subject to bias and systematic errors, based on the quality of links within the chain (Moshin, 2016). However, the COVID-19 restrictions limited my options for gathering participants during lockdown. A total of 10 interviews were completed. These methods are outlined later.

The participants for each wave of data collection are detailed below:

Wave of data collection	Data collection method	Participant demographics	Participant recruitment method	N:
1	Focus groups	Early years practitioner teams in **Suffolk settings**	Contacted settings via email through Suffolk "List of Providers" asking for teams to participate in a focus group in their setting.	1
2	Telephone interviews	Early years practitioner working in a setting in **England**	Recruitment took place on social media professional early years groups on sites such as Facebook and Twitter, calling for early years practitioners and volunteers to take part. Respondents commented on the posts or emailed me directly to express an interest in taking part in a telephone interview and I then sent private messages asking for their contact details so I could send further information to them.	10
2	Online questionnaire	Early years practitioner working in a setting in **England**	Recruitment took place on social media professional early years groups on sites such as Facebook and Twitter. The online questionnaire was posted so practitioners could click directly onto the questionnaire. Reading the information and giving consent was required before the participant could enter the first part of the questionnaire.	92

Table 4; sample of participants

Access and gatekeepers.

Negotiating access to participants often involves asking permission to approach or contact individuals through a gatekeeper (Silverman, 2010; Holloway & Brown, 2012). Often an individual or organisation with responsibility, who may have considerations of data protection, or welfare or wellbeing. In this instance, I needed permission and compliance from setting managers to pass on information about my research to their employees, as it would have been impossible to have the information on these individuals to contact them directly. Therefore, I was asking the gatekeepers to use their contacts to share my research project and ask for participants.

This method of reaching participants had the obvious benefit of widening my access to those willing to support the project. However, it did come with feeling of guilt that I was asking managers to perform a task that may not benefit them initially, rather give them even more

work to do. However, I felt this project would help managers and settings in the long term, as it may help to upskill and then take some of the pressure off settings if I am able to go some way to improving practitioner training and competencies.

Negotiating access is often easier when the researcher is known to the gatekeeper (Fuller & Petch, 1995). I found this to be the case. Those managers and senior practitioners whom I have a working relationship with were more forthcoming with their agreement to support my research and pass the information on to their colleagues. Silverman (2010) reminds us that it simplifies the data collection process to draw upon existing contacts. I was lucky enough to have a good working relationship with a range of managers, senior practitioners, and settings across Suffolk due to my tutor and assessor role. However, there needs to be a balance between making use of contacts and breaching ethical guidelines of power between the researcher and potential participants. At every point in communication, I stressed that participants did not have to agree to either participate or pass the information to others. There would be no negative effect in declining involvement.

Fuller & Petch (1995) explain that researchers need to consider a gatekeeper may agree to share information and participate with an agenda of their own. Maybe to use the research to support a cause or claim they are trying to make to their committee or organisation owners, in the process trying to sway the process to fit their agenda. In either case, the researcher needs to be very clear about the process and focus. Being transparent from the beginning, with written guidance and objectives that do not allow for any sway from the objectives, nor bias or drift. When I was seeking the assistance of gatekeepers, I made it very clear that they would not have access to the primary data, however I would be happy to share the final thesis with them at the end of the project.

5.13 Pilot studies, working party and feedback.

Pilot studies serve a multitude of purposes, including finding out what works and what doesn't work (Fuller & Petch, 1995). Pilot studies give an opportunity to explore the questions, and whether these are understood by respondents, how much time the focus groups and interview would take, and whether pilot study respondents found the process laborious and too time consuming (Silverman, 2010). A pilot study helps to improve the process for future respondents and participants. Pilot studies also help the researcher to gauge whether the process yields the type of data they are looking for; there is no point in continuing with tens, dozens or more participants if the data is going to be useless.

Participants of the pilot study should ideally not be part of the main study (Fuller & Petch, 1995), and if honest feedback is sought, should be individuals whom the researcher feels comfortable enough to ask for, and receive constructive criticism. As part of the design process for my surveys and focus groups and interviews, I employed the assistance of my work colleagues, all of whom are lecturers, assessors and internal quality assurance officers of early years qualifications, past early years practitioners and managers, and an OFSTED inspector. I have worked with these individuals for various lengths of time, ranging from 2 to 10 years, and we are a strong and close team. I felt their honest feedback supported and strengthened the design of the research.

I asked my 6 colleagues to engage in focus group, and later, complete the online survey. I asked them to complete feedback sheets, based on their views of both processes. The feedback I received ranged from queries about spelling of the word 'preschool', to questioning consent form printing. All of which I used in refining the processes before beginning data collection on *real* participants. The pilot study processes helped to give peace of mind that the questions, design, timings, and documents were valid and fit for purpose. I was also more confident that the questions asked would yield beneficial data.

Additional Ethical Guidelines when using digital methods.

In addition to the primary ethical norms, I also observed internet research ethical (IRE) guidelines set out by the Association of Internet Researchers. The main presumptions of the IRE guidelines are ethical pluralism and cross-cultural awareness (Franzke *et al*. 2020). An acknowledgement that when research is advertised online for participants, with the potential to reach much further than if one were collecting data in person, one cannot presume respondents will be of certain ethnicity or culture, and therefore awareness and preparation for this should be made to avoid any problems. An example of this is:

> *"Western assumptions regarding human beings as primarily individual persons and moral agents, vis-á-vis more relational conceptions of selfhood, in which our sense of identity is largely constituted by multiple relationships, spanning from the family through larger communities and, in some cases, natural and supernatural orders as well" (Franzke et al. 2020, p. 6).*

This example highlights that when creating questions that could be responded to by those from cultures with differing views of the self, and what makes our identity, we need to be considerate of how these questions may be received and interpreted and reduce any content that may cause offence or upset. Other, more general considerations around giving informed consent, safely storing and deletion of data, protecting the identity of the researcher and power balances are also included in these guidelines, however, these were covered in the main ethical planning.

5.14 Methods.

Methods are specific research tools or techniques chosen to fit the theories and methodology (Silverman, 2010). Methods will be closely linked to the aims of the study, and the data required (Harper, 2011). The characteristics of qualitative study data collection methods are categorised into four groups of information: observations, interviews, documents, and audio-visual data (Holden & Lynch, 2004). Originally, I chose focus groups with teams of EYPs in their settings to carry out discussions about their experiences. I believed this method would allow EYPs to share their experiences of using technology and share their views about the changes to the EYFS may affect practice. However, due to COVID-19 restrictions, I changed the method to telephone interviews, and later, online surveys. Although the changes to data collection methods meant teams were not discussing this subject together, the telephone interviews and online surveys still allowed EYPs to share their views on this subject, based on their experiences, which is how views are socially constructed (Pasupathi, 2001).

Focus groups.

Focus groups were the initial choice for the first wave of data collection. Unfortunately, only one focus group was completed before the COVID-19 setting closures to visitors, which forced cessation of this method. Focus groups allow interaction between a group of individuals who may be connected through a theme, such as their place and nature of work. Focus groups allows cooperation and support in discussions (Holden & Lynch, 2004). This was found during the focus group conducted at a preschool in Ipswich, where a group of practitioners who were all employed at the setting shared a discussion with me about their experiences of the setting they were currently employed at, and previous employment.

Focus groups require ground rules to be established at the beginning of the session. The ground rules that were agreed upon were:

- All staff had equal value, regardless of their age, employment position and time in service,
- All staff opinions were important, and none would be dismissed,
- When one participant was talking, others would listen,
- If a participant disagreed with another's opinion, their disagreement could be voiced in a respectful way,
- All staff would feel free to join in conversations, but none would be forced to engage,
- The researcher would allow conversations to flow between participants, and only intervene once a conversation thread had come to an end.

Throughout the focus group, care was taken to monitor participation from all practitioners present (Sim & Waterfield, 2019). Subtle and gentle methods were employed to coax the less verbal members of the group to participate should they wish (Stewart *et al,* 2007), eye contact and body language was used to show quieter members of the group their contribution would be valued (Litosseliti, 2003). Care was taken not to single them out as non-participatory (Krueger & Casey, 2000). Similarly, techniques were employed to allow all participants to speak, even when some individuals dominated the conversation (Greenbaum, 1999).

There is a need for awareness of and sensitivity to power imbalances either because of the researcher's presence at the site, or because of participating in the research (Ayrton, 2018). Care was taken during this focus group not to upset dynamics of power hierarchy within the team, as there were obvious managers, seniors, and junior apprentices within this group, so respect was observed for this company structure. However, all participants were encouraged to give their views equally.

Part of the research focuses on differences of opinion according to age, experience in length of time spent in the profession, whether practitioners have their own children or not, and whether they have training or personal experience of using technology or not. So, all practitioners, young and old, new to the role or very experienced, had equal value in their responses.

The focus group was successful, and participants completed the full set of questions, and 3 aims were realised with this focus group. I gathered data on the EYPs views and experiences of using technology in their role as a practitioner, how they support children in the setting, how

their OFSTED inspection had raised some questions regarding their technology provision, and their lack of training on the use of technology.

During my debrief, as I listened to the recording, I noticed that the recording was a little muffled. I decided I needed to ensure the recording device was closer to the participants for the next focus group, however, the overall experience was successful.

Interviews.

Due to the COVID-19 pandemic and lockdowns in 2020 and 2021, I was only able to conduct one focus group. As groups of individuals were not permitted to meet in face-to-face situations due to a national lockdown and Government guidance to *stay at home*, I made the decision to change the data collection method so I could continue to collect data during this time. It was not known whether teams of practitioners from one setting would be able to attend online focus group meetings, and I was conscious of time slipping away.

I made the decision to change the data collection method to telephone interviews for individual practitioners, so I could finish the data collection. Telephone interviews were (at the time of collecting my data) the most common way to speak with participants if face-to-face conversations were not possible. Having lived through a global pandemic, and learned new ways of working, one would now almost certainly opt for virtual meetings, using functions such as Zoom calls, Teams, or Google meet. However, I was not familiar with these until COVID-19 became a more permanent part of our lives.

Interviews are a common method used to gain information, not just in academia, but in many aspects of everyday life. The method's prevalence in the media, talk shows, music, and film industries, and use in business highlights the effectiveness of the tool for achieving the collection of information (Silverman, 2010). Interviews for medical research became a popular method for gathering the views of patients and avoiding misinterpretation of their experiences (Butler-Kisber, 2010).

Designing interview questions for academic purpose requires some forethought and planning. To achieve a dataset which gives an overview of your desired topic requires thought on how to achieve this. Consideration on the length of time the interview will take, and how in-depth the answers to your questions will be will determine the nature of the questions asked. Ethical enquiry is characterised by questions which:

- Are unbiased,
- Are unambiguous,
- Are not leading,
- Use language familiar to respondents,
- Indicate the level of response required,
- Have a coherent structure,
- Do not generate unease,
- Are geared in length to the likely tolerance of the respondents (Fuller & Petch, 1995).

To achieve rich, meaningful data, interview questions should be constructed as semi structured; minimal in number and open ended in design, to elicit lengthier responses from participants (Flick *et al.* 2004). Corbin and Strauss (2008) also recommend having some back up questions ready, to save a situation where a participant may have been keen to take part, but becomes nervous or anxious during the interview, finding little to say.

I found having training and lots of experience in performing professional discussions as part of my day job helped in the interview process, both in asking questions in relaxed and inquisitive ways, but also knowing when to unpack certain aspects of an answer, to gain further insight into a participant's response to a question. One strategy I use in my day job that I needed to be aware of and avoid was leading participants towards certain responses. When assessing learner's knowledge as an assessor and tutor, it is often required that the student is *coached* or *directed* to ensure their responses cover desired criteria. This is achieved through probing questioning (Beech, 2020), funnel questioning (MTCT, 2021) and spiral questioning (HTI, 2021).

Of course, using questioning methods to receive pre-determined responses is unethical and defeats the objectives of the research, so being mindful of these techniques was essential before and during the interview process, in constructing the objectives for the project, constructing the interview questions, and during the interview process. This might have been more significant if the research was intending to validate or disprove a pre-existing theory, but as the research is based on giving a voice to early years practitioners' experiences, it was less likely I would be leading participants to respond in a certain direction.

Corbin & Strauss (2008) remind us that it is not just what is said that is important. The construction of the questions, the meaning, along with nonverbal cues given by participants during the interview process are important aspects to capture.

The semi structured interview questions were designed in sections. Demographic data was collected first, such as the participants' age, level of qualification length of time in service, data about their setting, the number of children they care for, and then went on to collect data about their opinions on children use of technology (see appendix 8). This data was collected so I could examine links between participant age and views on the use of technology, on participants' training and their views on technology, and participants' views on their levels of confidence in using technology and their views on the changes to the EYFS. The links were sought to examine the networks between actants (EYPs, government guidance, the EYFS, funding, training, the COVID-19 pandemic) and the ANT lens was applicable to examine these networks.

Telephone interviews.

I had not intended to use telephone interviews at the initial design stage. The methods evolved as the project changed, and the influence of COVID-19 lockdowns meant I had to adapt to continue data collection. However, telephone interviews became a successful method for data collection. As Creswell (2013 p.32) states:

> *"A telephone interview provides the best source of information when the researcher does not have direct access to individuals".*

This method has been used in other realms of research such as anthropology, sociology, marketing, healthcare, and business management (Block & Erskine, 2012). This may be one of the reasons the method has sometimes been dismissed as not scientific enough for academia. We have all been hounded by telemarketers in the past, cold calling to conduct large scale data collection via random telephone call attempts (Cannell, 1985).

Although my use of telephone interviews was an alternative method due to access issues, some researchers find this method preferable due to the security of non-face to face contact this gives for their participants, reducing anxiety and inhibitions for participants (Sosik *et al.* 1998). There are also the benefits of a reduction in time and money for travel, for both the researcher and participants (Fuller & Petch, 1995), the convenience and location options for participants (Taylor, 2002).

There are some disadvantages to telephone interviews. Where telephone interviews heighten the feeling on anonymity which can be a positive aspect for participants comfort and reducing anxiety (Block & Erstine, 2012), it can also heighten feelings of distrust due to the impersonal nature of asking questions in a non- face to face situation (Kempf & Remington, 2007). This could lead to participants feelings more uneasy than if they were answering the questions in a face-to-face situation. I felt that, as described earlier in the section on positionality, the language I used in the questions, especially terminology on the EYFS framework and the areas within the document such as the *early learning goals* and *areas of learning and development,* helped to put participants at ease that as a researcher I was knowledgeable on the subject. Further, as participants were either known to me personally, or given my contact through someone they work with and trust, this barrier was overcome.

Erskine (2012) describes three barriers to research including *psychological distance;* a lack of affinity between the interviewer and interviewee. The second barrier is structural distance; properties of technology or task, and status difference. Finally, distance created by differences in sociodemographic factors, power, and prestige and is akin to relationship inequality (Erskine, 2012). If one or all these differences can be addressed, telephone interviews can reduce distance between interviewer and interviewee.

Another challenge with conducting research through telephone interviews is the researcher is unable to see the nonverbal cues given during the data collection process such as facial expression and body language (Holden & Lynch, 2004), and some argue participants answer differently when their body language cannot be used alongside their verbal responses (Groves & Kahn, 1979). As discussed as part of the methodology, the values of feminist research of nurture, reciprocity, and affinity (Parry, 2020) are also more difficult to achieve when not in a face-to-face situation. These values relied solely on the language and tone used to ensure participants felt at ease and in control of the process.

There are also challenges such as telephone connections and recording of voices to overcome. Fortunately, these issues did not pose problems for collecting data during this project.

The interview questions were emailed to the respondents, along with the briefing sheet once the respondent had agreed to take part in the study. This gave the respondent time to read the questions and think about how they would respond. The first section of the interview questions included respondents confirming (with audio recording) they had received the questions before the interview, along with the briefing sheets, and they were happy to participate, giving their consent.

Using the telephone as the communication tool made it easy to gather participants who were geographically unable to meet face-to-face. It also allowed me to interview during a time of lockdown, allowing me to continue my research. I was very mindful of listening for verbal cues, changes in voice levels and long pauses to ensure participant wellbeing was maintained. A reflective debrief recording for myself was carried out after every telephone interview, to capture my thoughts about responses, pauses in response, tone of voice and potential double meanings to responses, to allow a record of this, as I did not want to forget my feelings and thoughts after these phone calls.

The interviews worked well. I found it helpful to have the opportunity to follow up questions that a participant may have given a rather brief answer to, and where I needed clarification, in comparison to the surveys where some of the responses were brief, and I had no way of following this up. I enjoyed talking to practitioners about their experiences and learned a great deal about how they use technology, and levels of confidence. I would have continued with this method, had COVID-19 not changed practitioners work patterns, making it very difficult to find practitioners who had time to participate in an interview.

After 10 telephone interviews, I began to struggle to recruit new participants. I was aware from social media group chats, and telephone chats with practitioner colleagues that their work was becoming draining. Having to continue working when most of the country was furloughed, having to cover for sick or isolating colleagues, and the emotional stress of the pandemic was making practitioners weary. I knew then I had to change my method again, to allow continuation of fieldwork, and reverted to an online survey method.

It is always important to reflect on the choices made during research. As a reflexive researcher, examining the choices of digital tools used (Paulus *et al*. 2014) to collect my data has left me wondering what my research may have looked like if I was not collecting data throughout a global pandemic.

The use of digital methods to collect data was not the ideal method for this study. It served the purpose of allowing me to continue my research in a time of lockdown and non-contact. It had the benefits of allowing me to reach out to many participants and following this I was lucky enough to receive many responses from across the country, participants with a range of qualifications and backgrounds.

As a process for collecting qualitative data, I feel the valuable nonverbal information gained from a face-to-face interview or focus group was lost and having the chance to conduct some face-to-face data collection focus groups and interviews before lockdown, I missed this as the process unfolded. As Bergmann & Meier (2004) discuss, electronic process data does include many prior activities. A survey response received by a researcher is the result of a process of

the respondent deciding to go online and visit the social media site on which the survey was advertised, open the survey, and read the briefing sheet, make the decision to take part and complete the survey and submit their responses. However, the data cannot capture the emotions, problems, moans, and groans that accompanied the completion of the survey (Block & Erskine, 2012). The problems with internet connection or the length of time the respondent pondered on their response (Ye, 2007). Nor can the data capture respondent's reluctance to answer a question, or the reason a question may have been left blank (Sue & Ritter 2014). These are the opportunities taken by a researcher to interpret non-verbal cues in a research situation such as an interview of focus group which are lost in utilising digital data collection tools.

Surveys.

Surveys were chosen because of dwindling participants through the national lockdown, when practitioners were feeling physical and emotional exhaustion. The telephone interviews began to reduce, and participants began to cancel bookings. To overcome the barriers of participation, I changed the method to allow more participants to access the questions in their own time. Online surveys are cost effective, convenient, efficient, both for the participant and the researcher. They free the researcher from bounds of geographical location (Lefever *et al.* 2007) and allow respondents to give their data at times and locations convenient for them.

There are considerations in planning, to minimise potential barriers to respondents completing survey. As Carbonaro & Bainbridge (2000) explain, the survey design must ensure participants do not get bored or overwhelmed by many questions, have security measures to ensure confidentiality and anonymity, and be accessible for those with minimal IT skills.

The survey consisted of twenty questions, many of these questions were single answer questions or multiple choice, such as the age bracket of participants, and their highest level of early years qualification, to avoid too many lengthy answers (see appendix 8). The surveys were created on SurveyMonkey, which offers a free, fast, simple, and effective service, along with data analysis and presentation functions, automated data transfer into visual charts and graphs.

There have been criticisms of the use of online surveys to collect qualitative data; Tse (1999) argued that participants may find it difficult to share their true feelings using this method. Comley (1997) argued responses may not be as authentic as they can be read and re-read until the respondent is happy before submitting; Folkman Curasi (2001) raised concerns about

the dropout rate due to concerns about anonymity. However, I wanted to maintain my intention of giving the practitioners a chance to share their experiences and views. The survey was not intended to gather data that could be quantitatively analysed; it was simply to allow practitioners to participate, despite the conditions of national lockdown, and the practitioners being extremely overworked at the time of the pandemic.

5.14 Data collection and storage.

Focus groups and interview data involved collecting audio voice recordings on a voice memo application on an iPhone. These recordings were uploaded onto Google Drive and stored, ready for transcription. Once the recordings were uploaded, the original copy was deleted from the device. As Silverman (2010) states, good quality equipment ensures reliability, especially as there may be a need to listen to recordings multiple times. Butler-Kisber (2010) add recording interviews allows the researcher to be fully immersed in the conversation, without having to worry about writing everything down.

After each focus group and interview, I produced a reflective audio recording to capture my thoughts, feelings, and views on the experience. These were also recorded on the application on the iPhone, uploaded to Google Drive, and the original copy deleted from the device. I found these very helpful to listen to upon transcribing each focus group or interview recording, as it helped me to remember the circumstances, situation, atmosphere, and other details which may not have been picked up, such as non- verbal cues during the focus group, and how the team dynamics which were apparent during the physical experience may not have emerged whilst listening to the audio recording.

Reflecting on these processes, I found the personal debriefs I completed very helpful. However, some of the audio recordings were difficult to listen to upon transcription. This was due to the positioning of the device, and in the case of the focus group, the room used to conduct the activity was large, making the audio recording quiet. Creswell (2007) states that lapel mikes are the best form of device to use for recording interview and focus groups.
However, cost permitted such sophisticated equipment.

The masses of data collected during qualitative enquiry is part of the design that is seldom considered fully (Plummer, 1983). Consideration needs to include how data analysis will be managed. If software is used, then digital storage of transcribed data will assist in this transition. However, if analysis is to be more *paper and pens* based, data storage needs to prepare for, and assist this process.

The storage of data must always be secure. Using a PC may result in data loss, or data corruption. However, when considering using a large storage system such as cloud, security must be considered, in the form of password protected files, and knowledge of the protocol for possible issues such as data leaks or file corruption. As a post graduate research student, I was prepared and aware of the university's protocol for protecting my primary data, and the process to follow, should a problem arise with any aspects of data protection, and following these protocols adhered to the GDPR (ICO, 2018) regulations.

5.15 Data analysis.

There are many ways to analyse qualitative data. While some advocate for the use of word processing (Lapelle, 2004) or a spreadsheet (Meyer & Avery, 2009) the use of computer assisted qualitative data analysis software (CAQDAS) is also an efficient method for analysis of qualitative data as well as quantitative data. Saldana (2013) discussed 25 digital coding methods. Early software included Ethnograph and NUS*IST (Paulus *et al*. 2014) and more recent software such as ATLAS.ti, NVivo and MAXQDA are popular due to their ability to store, retrieve, organise, link and code data. It is also possible to place themes and other categories of data into visual images; word clouds, charts and other easy to view groups to help the researcher see patterns.

I began the data analysis believing I should use a software package. I believed it would make the analysis more scientific, auditable and reduce bias (St John & Lee Johnson, 2000). I chose ATLAS.ti because my university had software access and training available. I entered the data into the software and began to open code my data.

Coding.

There are generally three types of coding:

1. Emergent or open coding,
2. Framework analysis (or structured coding) where data is matched to a set of pre-existing codes or themes,
3. A combination of the two; where the researcher begins with an idea but is open to new codes and themes.

Coding can be descriptive (coding what is being said), it can be thematic (creating themes), data can be coded line by line (assigning each line its own code which describes the line or sentence), interpretive phenomenological analysis (IPA) which examines participant experience, making meaning of things happening in their world, in vivo coding, using participant's own words to summarise the data and using a key term as a theme or category, discourse analysis (looking at how people express themselves) (Patel, 2014).

Miles & Huberman (1994) describe open coding as adding labels, tags, looking for words, phrases or sentences which can be grouped together. They advise a researcher to begin with this type of coding and assign a description to each group. From these initial codes, themes may be generated.

> *"If your analysis is a brick-built house with a tile roof, your themes are the walls and roof, and your codes are the individual bricks and tiles. Codes identify and provide a label for a feature of the data that is potentially relevant to the research question" (Braun & Clarke, 2012, p. 61).*

Themes.

Thematic analysis (TA), was first developed by Gerald Holton in the 1970s (Merton, 1975) but has only recently been recognised as a distinctive method of analysis, supported by the work of Braun and Clarke, who proposed a theoretically flexible approach to TA (Braun & Clarke, 2012).

Thematic analysis can be inductive, where data is analysed from a *bottom-up* approach or deductive; a *top-down* approach, guided by existing theoretical concepts and understandings. This is often carried out in the form of thematic framework analysis. In thematic analysis, the researcher will organise, transcribe, immerse themselves in the data, reading and familiarising themselves with the full dataset. Coding is completed by separating data into themes, writing memos, identifying connections between codes and themes, visually representing the analysis, and offering interpretations.

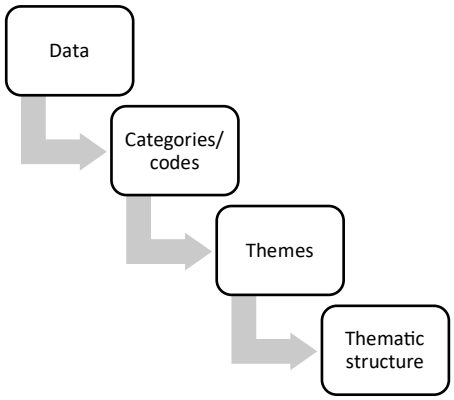


Diagram 4; Illustration of thematic analysis. (Braun & Clarke, 2012)

Some researchers do not code at all, describing the process as reductive (Miles & Huberman, 1994). The process of coding one's data is a personal journey, directed by the methodologies of the project.

Early in the data analysis process (when using the ATLAS.ti software) I began to feel that I was losing control of my dataset and wasn't really *immersed* in it. I did not feel connected to the data, and with all the benefits computer assisted qualitative data analysis software (CAQDAS) brings, I felt detached and unable to look for themes. I decided to go back to pen and paper and analyse my data by hand. I was feeling what Seidel (1991) calls the *dark side of the technological advance*. The distance from the data is one of many concerns about using technology to analyse qualitative data. Other worries include that it will lead to qualitative data being analysed quantitatively; it will lead to increasing homogeneity in methods of data analysis, and it might be a monster and hi-jack the analysis (Barry, 1998).

In going back to coding by hand, I followed a process like the model by Braun and Clarke (2012) above. I began by using the questions asked during the interview or focus group to see if the responses could be categorised. This gave loose categories:

- Practitioners' views on the use of technology inside the setting,
- Practitioners' views on technology use outside of the setting,
- Practitioners' views on how COVID-19 has affected technology use for their role, • Practitioners' views on how COVID-19 has changed children's use of technology,
- Practitioners' views on the changes to the EYFS in relation to technology use.

Once I had data coded into these categories I began to look for other data which linked the categories:

- Qualifications
- CPD training
- Confidence
- Personal circumstances
- Experiences during the COVID-19 pandemic
- Views on the changes to the EYFS

Upon examination of the data using the categories above, the following three themes naturally emerged:

- Political factors that affect technology use
- Professional factors that affect technology use
- Personal factors that affect technology use

These themes allowed me to structure the data in a way that captures the various influences on EYPs, and how the changing landscape of early years was affecting practice during the time of my data collection.

I believe these 3 themes cover all aspects of practice, from top-down Policy that EYPs were following, mass media coverage of children using technology, the COVID-19 pandemic and how this was affecting EYPs in their professional and personal lives, pre-existing views, and opinions EYPs hold, and the setting challenges that were present at the time. These three themes are the titles for chapters six, seven and eight.

The themes differ from those chosen in studies such as Jack (2019) who used extrinsic/ intrinsic and micro/ macro themes. Ludgate (2018) who used themes of play, authority, and pedagogy. Flewit (2014) who used themes of increased skills of the child, and confidence of EYPs, and Clark & Luckin (2013) who used themes of intrinsic, extrinsic factors. I chose my three themes because they fitted the situation best at the time of data collection and analysis.

Once the data was coded into this thematic structure, the ANT lens was utilised to view these themes through a network system, to appreciate the links between the themes. These ANT diagrams are included at the relevant points within the data presentation sections in chapters six, seven, and eight.

5.16 Conclusion.

In this chapter I outlined ontology, epistemology, methodology and methods, and how these are guided by the research aims and objectives, rather than the researcher picking these for other reasons such as ease of use or convenience. Throughout the chapter, I justified how these concepts have informed the design of the study, and how reflexivity, positionality, and ethical considerations have shaped the research process.

Designing the research through examining methodology and choosing research methods should be smooth process if the aim and intention of the research is strong. Having research methods training at undergraduate and masters level, and the programme of post graduate research training at the University of Suffolk, along with the support and scrutiny of the university's ethics committee and expert supervision has helped to shape the research design, by allowing a foundation for considering the appropriate methodology and methods to select, and how to justify rejected methods.

The research aims led the project down a qualitative route, and the aims of exploring practitioners' perspectives required qualitative methodologies and methods to achieve this. The COVID-19 pandemic forced several changes to my data collection methods, some of which worked well, and others meant I lost the personal contact with my participants. On reflection, I would like to continue researching in this area, and gain more face-to-face data, possibly gaining some voices and views from children's experiences, however, even towards the end of 2021, COVID-19 was still controlling our practice and ability to mix with groups of people, or those we are not linked to through family households or regular work contact.

With new COVID variants emerging every few months threatening new restrictions, I was glad to bring data collection to a close (for now) to enable analysis of the data I had collected. Despite the ongoing restrictions, I felt I reached a stage where I had sufficient data to analyse and make some conclusions which would contribute to the existing body of research and benefit the early years community. However, as the implementation of the 2021 EYFS framework will mean further changes to practice, it would be beneficial to revisit data collection in this area, to explore how this new framework is being used, and whether technology provision has been affected in 12 or 18 months, possibilities for future comparative work lies with this strand of the thesis.

I concluded this chapter with a discussion the data analysis methods used, and how my analysis started with software assistance, but due to my feeling of disconnect to my dataset, the analysis was completed through the traditional methods of pen and paper. In the next 3 chapters I present the main factors that emerged during the data analysis phase of examining

what affects practitioners' views and experiences of technology use. During the data analysis process themes emerged which allowed categorisation into three main ideas:

- Political factors
- Professional factors
- Personal factors.

As discussed, other researchers who have examined similar issues have categorised factors using different models; In Jack's (2019) thesis, and Jack and Higgins' (2019) research, factors that affected practitioners' views and experiences were categorised into extrinsic and intrinsic factors. Extrinsic factors included lack of equipment, training, and technical support. Intrinsic factors included attitudes and beliefs as described by Ertmer (1999). Although satisfactory categorisations, I have chosen to examine the factors in a slightly different manner, using these three "P" themes. I believe this captures the current issues, and practitioner views and experiences succinctly, but also gives more consideration to the wide variations in participant age, training experiences, personal circumstances, the varying changes the sector is experiencing due to COVID-19, and Policy changes. The findings are presented in these three themes to examine any links between the data.

In chapter 6 I present data which is attributed to Policy and political factors, namely the changes to the EYFS, and data that highlights changes to practice during the COVID-19 pandemic.

Chapter 6 Findings. Political and Policy.

6.1 Introduction.

The title of the chapter *Political and Policy* relates to Policy change of the EYFS, revised for publication in 2021, and *political decisions* made by the government that affected early years setting's guidance for continued practice and service during the lockdowns of 2020 and 2021. These political decisions had implications for the EYPs employed in settings, who had to continue working, despite most families being confined to contact within their own household. The EYPs feelings about these political decisions were explored during fieldwork and are presented as part of these findings.

The 103 participants were made up of one focus group of a small team of EYPs who worked in a nursery in Ipswich, Suffolk. The data also comes from telephone interviews and online surveys which were responded to by EYPs working in settings across England.

The content of this chapter demonstrates meeting research aims:

- Investigate practitioners' experiences of using technology during the COVID-19 pandemic,
- Examine practitioners' views and opinions of the changes to the EYFS framework in 2021, and how these views may affect the use of technology in early years settings.

Practitioners had mixed views on the removal of technology from the 2021 EYFS. Many practitioners felt it was a positive change, citing views that children overuse technology, technology is expensive, confidence and knowledge of how to embed technology was sparse, and that technology should be embedded into all areas of learning and development, not just part of a 'tick box' system to please OFSTED. These intrinsic and extrinsic factors were similar to those discussed in similar studies by Jack (2019) and Ludgate (2018).

Respondents shared their experiences of using technology during the COVID-19 pandemic. Most practitioners explained technology was used more during lockdowns, to communicate with children, families, and other professionals, but children were using technology in settings for different purposes.

In this chapter I present findings from data collected during 2020 and early 2021, before the national implementation of the September 2021 EYFS, therefore the framework being used in settings was the 2017 version (DfE, 2017). However, practitioners were aware that the revised 2021 EYFS was imminent and were preparing for this change. Respondents were able to compare their current practice using the 2017 version, and how this may change when using the new (2021) framework. An explanation of the changes to the EYFS and supporting documents is presented in appendix 9.

6.2 Practitioner's views on the changes to the EYFS framework.

How do you feel about technology being removed from the 2021 EYFS framework?		
Not happy about this change	I feel OK with this change	Happy with this change
35%	17%	48%

Table 5; views on the removal of technology from the EYFS framework.

The removal of technology from the framework is a positive change.

Two thirds of respondents felt the removal of technology from the framework is a positive development, or they feel 'ok' about this change. Some participants gave brief responses with indicators of happiness; *"I have no problem with this"* (survey respondent 65). *"It's a good thing and I am glad it's been removed"* (survey respondent 6). *"Perfectly happy with this"* (survey respondent 33), and *"Thank goodness"* (survey respondent 22). Others gave more detail to justify their feelings; *"I think the children will have enough access at home that it's not really necessary in settings"* (Survey respondent 56), *"It's not needed in today's learning as they can already do it"* (survey respondent 18).

The opinion that children are using technology at home, and therefore do not need to use technology in the setting contrasts with data from similar studies; Basquill (2018) reported no findings to suggest her respondents shared the view that children spend large amounts of time using technology outside of the early years setting. Although Jack's (2019) respondents included 'home access' and 'technology is everywhere' as factors that may affect their attitude towards using technology with children in a setting, it is unclear whether these factors are used

in a positive or negative light. Jack does not specify whether her respondents thought that children's 'home access' was positive or excessive, or whether 'technology is everywhere' meant they should protect children from technology in the setting or embrace it. Jack (2019 p.65) did report that "*For these twenty participants at least, attitudes are not a barrier to technology use*".

Ludgate's (2018) study noted some participants did believe technology was used too much at home, but conversely, some practitioners reported feeling the need to buy a touch screen device to ensure children who lived in homes where technology was not available would have equal opportunities to experience using this technology. For Ludgate's (2018) participants, the use of technology at home only highlighted a possible digital divide between families who did allow usage at home, and those who did not allow the child to use devices in their home.

Other responses from my participants indicated a belief that technology gets in the way of providing other opportunities; "*I am pleased about this as I feel that there are far more important areas to focus on in the early years"* (survey respondent 13) and *"I think there is a lot of technology in the home and there are more 'important' skills they need to develop at nursery i.e., social, and personal skills"* (survey respondent 52).

These responses indicate a belief technology gets in the way of learning; that technology cannot be a part of some of the seven areas of learning and development. When one considers these seven areas of learning (physical development, personal social and emotional development, communication and language, expressive art, and design, understanding the world, literacy and maths), these comments indicate that some practitioners may not be able to see opportunities where technology could be embedded into these areas.

Another respondent replied with *"Hoorah! I don't use it anyway"* (survey respondent 61). This respondent commented that their setting does not provide opportunities for children to experience using technology, despite (at the time) it being part of the *understanding the world* area of learning and development. These responses were very different to data presented in research by Basquill (2018) and Jack (2019) whose practitioner participants all reported believing technology was very important, even if they had varying degrees of confidence in supporting the use of technology in this environment. It appears some settings were not providing opportunities for children to experience using technology, even though the 2017 version of the EYFS required this.

Removal of technology is a negative change.

Although many practitioners reported views that the removal of technology was a positive change, 35% practitioners believe the removal of technology from the EYFS was a negative alteration. *"Shocking! In a highly technological society where some children are very tech enabled and keeping in contact with family and friends through technology, why ignore it?"* (Survey respondent 9). Another similar response was: "*Stupid idea. Children are living in a technological world. Why remove it?"* (Survey respondent 15).

These views were illustrated during COVID-19 lockdowns where families relied on technology to keep in touch through virtual meetings, video calls and other digital methods. Families had no face-to-face contact for many months. For some children, born through the pandemic, meeting extended family members for the very first time was through a screen or hearing voices on the telephone. For older children, using technology became an everyday occurrence, and a way to connect with loved ones and friends whom they were unable to be in personal contact with. The digital skills families developed during national lockdowns helped them through a very difficult period, and it is hard to see how these skills will not be beneficial moving forward.

Further responses which demonstrated practitioner's dislike of this change include *"This is not demonstrating a link to the real world. Technology is everywhere"* (survey respondent 55), and *"I think this is a mistake as technology is all around and even our youngest children can learn from it"* (survey respondent 26). Again, these respondents considered how the skills learned by young children will help them as they grow and experience technology throughout their childhood and adult life. As Papert (1980) explained, it is much easier for adults to hone skills learned in childhood, than to learn new skills from scratch.

Pinch & Bijker (1987) argued that "all members of a certain social group share the same set of meanings, attached to a specific artifact" (p.30). The data shows that EYPs do share similar views on the meaning and use of technology in an early years environment, but there is a difference of opinion on whether this is needed in the early years setting.

Technology as a tool for learning.

Respondents also considered the use of technology in an educational capacity; "*Technology should still be included in all early years curriculums due to how much it is used in society,*

good for cultural capital" (survey respondent 11), *"I was very shocked as it is a life skill and always been part of EYFS"* (survey respondent 50)*, "I think that it should still be included because children need to know how to use technology*" (survey respondent 29), and *"technology will most certainly hold the key to the future of our youngsters"* (survey respondent 20). These responses correspond with the views of Yelland *et al*. (2008) and Davidson (2012) who claim the current education system is not sufficiently preparing children and young people to use technology in ways that will benefit them as they grow and develop into older childhood, and adults entering the world of industry. Many respondents believed that if technology is completely removed from the framework, there may be a reduction in settings working towards preparing children to use technology which will be a huge part of their older childhood and adult life.

Supporting the learning of using technology safely.

> "*I don't think it's good. Because as I keep saying, It's such a big part of life. Now, I think that children should be able to grow up with it from a very early age, I think they need to understand the importance of it. And I think they need to understand the safety of it. And if they do that, from a young age, it kind of helps to remember more when they're younger, it's kind of imprinted upon them. And they understand how to use this technology and how to use it safely*" (interviewee 4).

This respondent included consideration of how settings can help children learn to use technology safely. However, other participants had differing views:

> *"I think it is now assumed that children are naturally exposed to technology in this modern society, therefore the assumption is that these skills are developing without concern*" (survey respondent 46).

Online safety is one of the largest parts of the curriculum for ICT and PSHE lessons in year one and above. Yet, without any formal inclusion of technology in the EYFS, there can be no standardised teaching on safety for our youngest children, leaving this to parents and practitioners who may have had little, or no training on how to support children's safe use of technology.

Technology use an as EYFS early learning goal.

Further comments referred to how technology is currently included as part of an *early learning goal* which is assessed in the EYFS profile assessment:

> "*Quite strange, because that's moving backwards, almost because technology is growing, it's getting bigger, we're getting new technology every year, every day even. Obviously, maybe they don't necessarily need to be assessed on it, but to still use it within other areas maybe*" (interviewee 6).

This respondent commented that technology as an assessed part of the *understanding the world early learning goal* could be removed, but there is no need to completely remove all traces of technology from the framework. Similar responses link the removal of technology from the assessed ELG; *"ICT can be supported as part of everyday learning and development*" (survey respondent 2). *"I think it's good to take away the emphasis and children are getting plenty of exposure to tech without it being part of the curriculum!"* (Survey respondent 31) and *"the children are surrounded by technology and early years can be a place where you can choose to use it or not rather than having to"* (survey respondent 24).

These responses show that some participants have considered the use of technology across all areas of the framework, and consider embedding technology into all areas of provision, rather than seeing technology as something that needs to be taught to tick a box on an assessment chart. Embedding technology across provision and into pedagogy is how Arnott & Yelland (2020) envision the future of the early years classroom. It is important that practitioners have the knowledge and skills to see how this is possible.

Justification for respondents' views.

These responses highlighted the mixture of views about whether the removal of technology from the EYFS is positive or negative. Several issues were raised in responses; the level of technology use at home, online safety, whether the use of technology is seen as a tick box exercise or whether practitioners embed technology use across all seven areas of learning and development, and whether technology is seen as an essential part of life in modern society, or whether it entrenches our world, so young children should be protected from it for as long as possible. As discussed earlier, the unique timing of data collection meant the

implementation of the 2021 EYFS framework had not yet happened, so participant data of views on the changing framework and its implications for technology provision is some of the first to emerge. It is not possible to show any previous data which corroborates or supports my participants' views on how the revised EYFS may change their practice.

However, the general view that children already spend too much time at home using technology is covered well in academic literature.

Considering the responses about the inclusion of technology in the EYFS framework, the data shows mixed responses to the upcoming changes. It is important to understand practitioners' overarching beliefs about children's use of technology, and how these beliefs may inform their decisions about how often technology is offered to children in their care. Many of these views and beliefs will come from personal experiences, which are examined further in chapter 8. It is evident through the analysis of early years practitioner qualifications (explained further in chapter 7), that currently there is very little content to prepare practitioners for using technology, or for understanding the various modes of technology use, therefore practitioners are forming opinions and making decisions about the level of technology to include in their pedagogy, based on views drawn from unbalanced and unregulated sources. If we understand where their knowledge comes from and how their opinions are formed, it may help educators of practitioners to plan effective training for them. We can devise CPD to help them develop these views and opinions into rational and calculated understanding.

Mentioned earlier, practitioners choose to conduct self-directed research as part of their regular CPD. One source of information that may inform these beliefs about children's technology use is through reading industry recognised journals and magazines. Magazines such as *Nursery World* and the *Early Years Educator* often publish articles about topics such as children's use of technology, and how technology can, and should be woven through provision (Faulder, 2018; Faulder, 2019). However, practitioners may also be reading reports and articles from other sources, giving conflicting views about the benefits and dangers for children (Erikson Institute, 2016).

One such article, written by Spanswick (2016) for daynurseries.co.uk included quotes from a "Dr. House" (no further reference to the source), making direct quotes such as "*Such 'toys' encourage an anti 'slow-learning' ideology of instantaneity"* and "*There is significant evidence that unbalanced early development and learning can lead to life-long clinical psychopathologies, and at worst premature mortality*" (p. 1).

With practitioners reading such articles, and possibly not questioning them, because they believe they are from a reputable source, nor thinking about the context in which these quotes have been made, it is easy to see how they may be forming assumptions about the negative effects of young children using technology, based on sources that are difficult to trace, yet these sources will help to inform practitioners' opinions and views on children's use of technology both inside and outside of the setting.

It is important therefore that practitioners are not making decisions about whether to provide access to technology or not, based on limited and possibly unbalanced knowledge. It would be very beneficial for practitioners to have a community of practice where information could be shared, which would help them make balanced, informed decisions, and help them to be critical of what they read during their research. Part of the support for practitioners needs to include a consideration of *how* children are using technology:

> *"There needs to be a balance between using devices to consume information, for example watching videos and playing games, and creating something. Early years teachers need to rethink what young children are learning to do with devices" (Faulder 2019, p. 1).*

For Faulder (2019) it is vital gatekeepers understand *how* children are using technology in different situations. For example, how technology use in a preschool or nursery may be very different to how technology is used in the home or family environments. To reduce technology in continuous provision based on a notion that children use technology in other areas of their lives reduces consideration of how children use technology in these different spaces. This can lead to children missing out on experiences of technology use to create, collaborate, research, and express themselves.

As Withersey (2021 p.1) states:

> *"It is highly likely that children start our settings having had early experiences using technology. They probably own a device of their own and/or have regular access to the internet. When looking closer at their screen time behaviour, they are more likely to be consuming on demand videos, digital libraries of music, plenty of games and seeing lots of photos and images".*

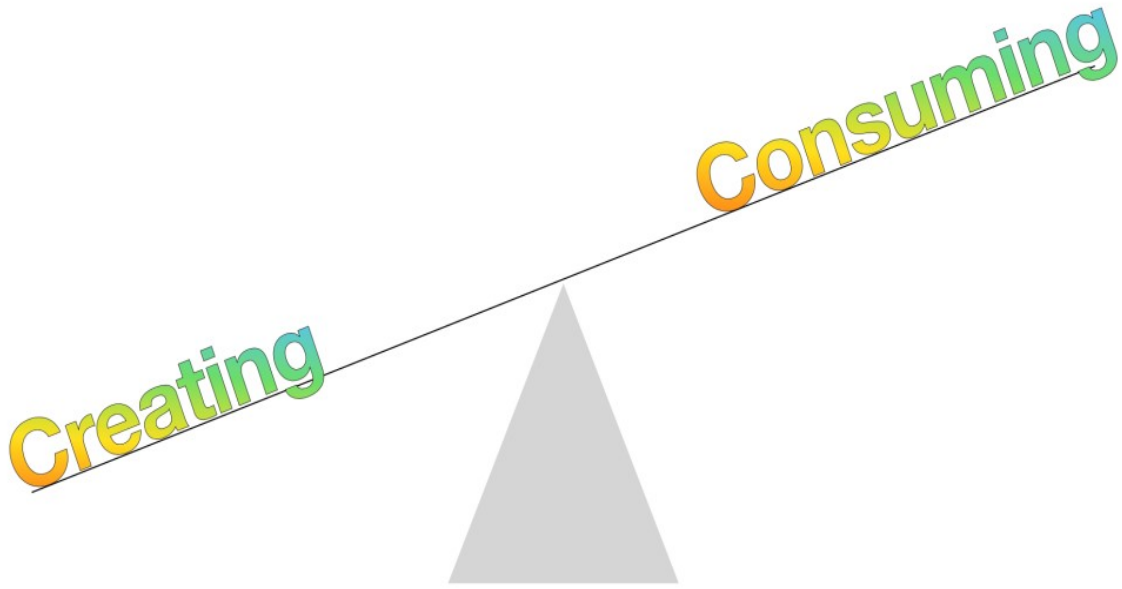


Diagram 5: Illustration of creation versus consumption (Withersey, 2021).

Withersey states young learners are using technology to *consume* much more than they are to *create*; that not all screen time is equal. In settings technology needs to be used in purposeful ways across the areas of teaching and learning so that children learn how to use it to create rather than consume. "*This will balance the scale or even tip it in favour of creating with technology in the same way children create with other resources in our enabling environment*" (p. 1). Currently, it could be argued with the evidence in this thesis, that practitioners do not yet have sufficient skills to achieve this, and to teach children how to create with technology requires training and education for practitioners, which will assist them in this task.

Technology use is affecting areas of development.

Some of the responses which indicated practitioners felt technology should be minimised in settings included views that overuse of technology can negatively affect children's overall development.

> *"Having been in childcare for 20 years I've seen a decline in children's ability to play and a rise in children's speech and behaviour issues where some children are kept quiet or busy with technology rather than with human contact*" (survey respondent 28).

> *"I agree completely, children need to use all their senses to feed their natural curiosity. Screens take a lot of this away"* (survey respondent 40).

These respondents shared opinions that children's use of technology has links with the rising numbers of children presenting with speech, language, and communication needs. There has been a rise in the number of children with speech, language, and communication needs (SLCN); "*Almost 10% of all children and young people in the UK – more than 1.4 million – have speech, language, and communication needs*" (ICan.org, 2021). This is a significant rise from 7.6% of all children in 2016 (Norbury *et al*. 2016).

There is little evidence to support these practitioners' views (that the use of technology is the sole reason for or has a direct link to children's increasing delays in development of speech, language, and communication). It is possible that practitioners are referring to situations where technology is used as a substitute for face-to-face conversation and engagement with children. This is a different situation; a lack of interaction, direct conversation and engagement with a child *will* result in delays in their speech, language, and communication development, as language and communication skills are learned through modelling and practice.

If a child is not given these opportunities, their SLC will be delayed. However, this can happen without the presence of technology. This is an example of a lack of childhood experiences and opportunity, or neglect; not the fault of technology. Technology may be a factor, however, it is difficult to attribute a child's delay in speech, language, or communication solely on the fact that the child uses technology.

Conversely, it is widely published that technology can in fact enhance the development of a child's speech, language, and communication. Grist (2020) argues that well modelled early language is crucial for the development of language skills which will support life chances, and for enabling children to learn and make friends. Technology can play an important role in supporting early language, by creating new opportunities for interaction and engagement. "*Apps can give early years practitioners the opportunity to enhance vocabulary development, whilst also supporting children's understanding of early language concepts*" (Grist, 2020, p. 1).

There are many features that can enhance children's speech, language, and communication. Applications and games can be engaging and fun and promote and support deeper level learning for those who hold particular interest in technology. However, as Grist argues that while technology and media can be supportive tools for assisting in speech and language

development, they should not replace the face-to-face daily interactions between children, and their parents and key persons*. "Apps are a way of facilitating this interaction in the same way as a book or some toys might do*" (Grist, 2020, p. 1).

In a balanced approach, technology is used as a tool with supervision, and not a replacement of the attentive adult who is supporting learning. The responses relating to views about technology being removed from the curriculum and links in developmental delays appear to be based on practitioner's observations of changes in the needs of children, and a rise in developmental delays. However, it is not clear how practitioners are making these links; whether it is based on research, or assumption.

The opinions of practitioners that technology use affects children's development, and that technology is used too much at home mirror the literature discussed in chapter four which examined the cyber sceptic and cyberutopian narratives, which often headline debates about children's use of technology, but as discussed in chapter four, often have little academic material to support the arguments.

Funding technology in early years settings.

Another factor included in responses about whether technology is a positive or negative aspect of early years provision includes the topic of funding for equipment and devices. Some respondents included consideration of the pressure to provide technology and how it's removal from the framework may a relieve strained funds:

> *"Puts less pressure on parents and teachers to have access to technology as mentioned above not every setting has the funds to purchase technology or attend training. Children can benefit from child led practical learning just as much"* (survey respondent 25).

The topic of funding is one of Jack and Higgins' (2019) extrinsic factors affecting practitioner's views and experiences of using technology within the classroom. The cost of technology is expensive. An iPad can range from £399.00 to £759.00 (Apple, 2021). Cheaper tablets can be purchased for around £50 upwards (Argos, 2021). However, maintaining, repairing, and replacing costs affect decisions to offer these to children.

> "*We've got like a Bee bot, which we use as a planned activity quite often; you can direct it and that moves around the map. So, we mainly use that as an adult led activity, as it's quite breakable. So, we mainly use that as planned and get an adult to sit with the children*" (interviewee 6).

Many participants who included cost in their responses gave examples of how they restrict the use of devices due to the possibility of breakages.

> "*We have got some, like, different electronic toys like a robot that can do different things. And that's not out all the time. But the children are sort of look after the toys because we had a child before putting them in sometimes to put in the water tray, so they didn't work anymore. So, they never experienced. So, once we did that, that won't work, so we won't have it anymore. And that's kind of been a lesson learned this term anyway*" (Interviewee 6).

Another respondent explained.

> "*The laptop would have to be, they'd have to ask a practitioner to sort of get it out because it can't be out all the time. Because it's more expensive*" (interviewee 5).

Another respondent reported how this need for adult monitoring of careful usage consumes adult attention.

> "*So, we will be close by and keeping an eye on exactly what's going on whether they're using it properly, because that's another thing that we, we try to teach children at a time on the computer. And for them to obviously use it appropriately, as well. Obviously, the cost of expensive resource*" (interviewee 7).

Many participants reported the need to consider the cost of equipment, and how this affected whether they left the equipment out as continuous provision, or whether practitioners closely supervised it's use, or only used certain pieces of equipment for adult led activity. Larger items such as light boxes, light tablets, and interactive white boards cost thousands of pounds, and are too expensive for small, charity run settings who often rely on donations and fund-raising events to purchase expensive items. For the children, it then becomes a lottery of experience; if a setting has funds to spend on buying, maintaining replacing, and updating technology

equipment and devices, the children are likely to have more frequent experiences of using this technology. This leads to an unfair experience for children from different settings.

Potentially, children could be disadvantaged by their preschool experience in technology use, which should include computational thinking skills and coding to best prepare children for algorithmic thinking in Key Stage 1 (KS1) (Faulder, 2018). These concerns were raised by some respondents; *"Some concern this disadvantages lower income groups"* (survey response 61).

The key stage 1 national curriculum for technology aims to ensure that all pupils;

- Develop the creative, technical, and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- Build and apply a repertoire of knowledge, understanding and skills to design and make high-quality prototypes and products for a wide range of users.
- Critique, evaluate and test their ideas and products and the work of others.
- Understand and apply the principles of nutrition and learn how to cook (DfE, 2013, p. 1).

A child may have limited experience of using technology at home, whether through parents being unable to provide their child with opportunities to experience technology, or a parent actively choosing to limit their child's technology use. They may also have limited use of technology in their preschool setting. If this child is working in year 1 with children who may have much more confidence and competence, this will not only affect their ability to keep up with class progress but damage their confidence and self-esteem as a student.

Further research would be beneficial here. I would like to investigate the views and experiences of teachers working in key stage 1, years 1 and 2, to explore whether they have seen differences in the ability, competence, and confidence of children in using technology for creative and collaborative activities and explore whether they have any evidence to suggest these differences may be due to prior experiences at home and preschool.

School readiness is a large part of the EYFS framework, yet there appears to be disparities between the content of the EYFS curriculum and ensuring a smooth transition from EYFS to key stage one. As reported in chapter two, 86% of school leaders who participated in the NAHT (2017) research claimed to have seen a decline of children's physical, cognitive, personal

social and emotional and speech, language, and communication skills at school entry over the previous five years. So, if school leaders are reporting children are transitioning into school with less skills and abilities to learn at key stage one level, it appears we need to examine how we can bridge the gap by ensuring the EYFS and key stage one frameworks blend better, not opening gaps by constricting the use, or reducing guidance to early years practitioners on the use of technology.

.

The EYFS is outdated.

Another important opinion of practitioners was that the EYFS has become outdated, and needs reform, especially in areas such as technology use. Bearing in mind the last EYFS was written in 2012: *"It was very outdated so I'm glad it's gone. Technology weaves throughout so I'm not sure it needed to be a standalone ELG"* (survey respondent 27). This response shows that some practitioners can see how technology can and should be embedded across all areas.

Another respondent commented; *"It was very narrow and limited. I don't believe people understood the purpose of it. I don't have a problem with it not being included in the EYFS"* (survey respondent 38). For these practitioners, the removal of technology from the EYFS allows practitioners the freedom to embed its use across all seven areas, as described earlier, without being prescriptive about how this should be done. For others, there was still a view that there should be some guidance on how to embed technology*; "I think 'technology' has changed considerably since the 2012 DM, but I do not think it should necessarily have been removed completely"* (survey respondent 39). Others reported that it might not be possible to have a framework, which is in use for years which can stay relevant.

> *"Technology moves so fast that the curriculum can never keep up. The old ELGS were so outdated. It is important that staff still use technology with children and expose children to different hardware and software"* (survey respondent 47), and *"Behind the times. Needs to be in there but with more specific milestones"* (survey respondent 59).

As explained in chapter three the 2012 and 2017 EYFS frameworks evolved from previous versions, and at each updated publication, changes appeared to how technology was included in the framework. However, the way technology was included in these versions appears very outdated now. It is difficult to see how specifics of technology could be included in a framework that stands untouched for four or more years before being updated and be relevant and current

where technology is concerned. The wording and content of technology elements of *understanding the world* do appear to be slightly outdated:

- *Knows how to operate simple equipment, e.g., turns on CD player and uses remote control.*
- *Shows an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones.*
- *Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements, or new images.*
- *Knows that information can be retrieved from computers.*

(DfE, 2017).

Although children do still use CD players, remote controls, and technological toys, having such specific devices mentioned does give practitioners the opportunity to think *this is too old fashioned and not relevant anymore* helping to support the notion that technology should be removed completely from the framework. The non- statutory guidance Birth to Five Matters (2021) includes guidance such as "*Completes a simple program on electronic devices*" (Birthtofivematters.org, 2021, p. 112) for children in the age range 6, and "*Seeks to acquire basic skills in turning on and operating some digital equipment*" (Birthtofivematters.org, 2021, p. 111) for the age range 4.

These types of guiding statements are inexplicit enough to be applied to many devices and resources, so will not age or become irrelevant after a few years. Including devices and media in the early years framework as *cultural tools* helps to promote the social construction of learning; being able to choose the most appropriate devices and applications for the time, and group of children gives practitioners the autonomy to plan their curriculum according to the needs of the group and remain relevant and current in their planning (of the use of technology).

A tool, not an outcome.

Some practitioners felt technology has developed to a point where it should be removed from the early learning goals and embedded throughout provision. However, some respondents feel that technology should *never* have been an early learning goal but should have been woven through all areas of learning from the start.

> *"Technology is a way of learning, not a goal in itself. The new framework will not stop it being used but will move focus onto what it is being used for"* (survey respondent 51).

> "*I think, maybe, I could be wrong, but I think, quite possibly, it could be, in an attempt to, maybe bring back, like what I've talked about? Like, it's not a focus, so the intention isn't to teach this child how to use a camera, or, how to access a website, the intention was to explore something, or to gain certain knowledge of something, or to think critically about something, so we're using those technologies and devices to achieve something else? Using them as a tool almost, rather than the outcome; which is kind of what I think we do; I think often we…. That was one of the reasons we changed to characteristics for our planning, rather than focussing on the areas, because it almost became a bit of a box ticking exercise, and actually, a lot of the time, ICT was probably the box that wasn't being ticked Why? Because, you know, they'd use the mini mobiles in a like turn taking…. You know, that was the main focus was on turn taking, or you know, the main focus was on communication, but we used technology as a tool for communication. So, I don't think…. Personally, for us as a setting we…. It would have much of an impact removing that?*" (Interviewee 3).

This response supports Arnott & Yelland's (2020) work which encourages practitioners to think of the classroom as an ecological system in which multiple modes of learning can be interwoven. The role of the practitioner is to provide multiple authentic methods for exploring, creating, and learning, including a range of media, including technology, as in this technological world, this is a natural addition to other modes of learning which may be more traditional for classrooms. Some practitioners already view technology in this way.

> "*We don't do it for the sake of meeting an early learning goal. We do it because we believe it adds value to children's experiences and their learning*" (interviewee 9).

These views mirror the limited explanation of the Department for Education's response to questions raised about why certain elements were removed from the new EYFS. As part of the consultations around the new EYFS "*a central theme was a concern that technology is missing*" (DfE, 2019, p. 9) and "*a consistent view was that the removal of technology as an ELG would be a negative step"* (DfE, 2019, p. 14). In response to the criticisms raised in the consultation period 24 October 2019 and 31 January 2020, the Department for Education

published Early Years Foundation Stage Reforms Government consultation response (DfE, 2019).

The concerns about the removal of technology were raised several times within this document on pages 9 and 14 as shown above, yet there is not a single explanation as to why this has occurred; instead, the response was of a more general nature.

"*Government recognises the importance of the educational programmes in the EYFS as the basis from which practitioners and teachers can plan and set their own individual curriculums. As we set out in the consultation, more detailed curriculum guidance on early years education from birth to reception is being developed separately alongside these reforms through a revision of the 'Development Matters' guidance. The new curriculum guidance will remain non-statutory, but we recommend that it is used to complement the new educational programmes" (DfE, 2020, p. 9)*.

Yet the Development Matters also omits any detail on the use of technology, leaving practitioners confused as to the reason for this; do the Department for Education believe children should not be using technology in early years settings (thus strengthening the views of some of my respondents)? Alternatively, does the Department for Education feel practitioners should be able to embed the use of technology as tools throughout the curriculum, in which case, the creation of training to support them to do this confidently is needed. Goto (2021) and Siraj-Blatchford (2015) feel the latter of these explanations is the correct answer to this question;

"*We do not need the use of crayons or pencils or chalk to be described within our curriculum document for us to recognise their value. Technology provides tools that are equally useful*" (Goto, 2021, p. 1).

As outlined in chapter four, Siraj- Blatchford (2015) explains we need to move away from understanding the curriculum as requiring aspects that taught children how to use technology (or as he describes this, technology education) and understanding that technology should be seen as a tool which supported and enhanced all aspects of learning (education technology).

Practitioners would have benefitted from an explanation from the Department for Education on the removal of technology from the framework, especially as concerns and questions were raised about this specific point. Further, this does not help to clarify how children are expected

to receive a standardised and appropriate experience of technology in preparation for their transition into key stage one, where technology *is* part of the curriculum. Moving forward, further research should be conducted to explore retrospective experiences of early years practitioners, to examine their practice after the 2021 framework has been in place for some time, so they can share their experiences of whether their inclusion of technology has decreased, remained the same, or changed. Many respondents claimed they would not remove technology from their provision, just because it is removed from the new framework.

> "*I think to be honest; we would probably stay the same; I think we are very much an outdoors… I mean, we've obviously got the woodland, the heath, so, we are very outside, we are very free flow, so again, those things are used to support other areas of learning, rather than being the area of learning. I don't think we ever have a time where we sit down and actually IT is our focus; if we were using the LCD boards, it would be a mark making focus, or a fine motor focus, rather than the actual ICT being the focus, so I don't think it would really change our way of working at all, really*" (interviewee 4).

Other respondents had similar thoughts on how these changes may affect their practice.

> *"I think I'll still use it because it can be used holistically, you can incorporate it into the other areas. So, I will definitely continue using it the way I am now. Just to help them prepare and know how to use it*" (interviewee 5).

Concluding practitioners' views on the changes the EYFS.

To conclude, practitioners had mixed, but mainly positive views on the removal of technology from the newest version of the EYFS, drawing their opinions from a range of extrinsic and intrinsic sources. Many practitioners believed their technology provision would remain the same upon implementation of the 2021 EYFS. However, equipment cost, time, staff attitudes, training staff, and replacing damaged or broken devices do affect the current provision for technology, so whether the levels of technology provided will continue remains to be seen. Some practitioners reported only providing technology for children to use because it is part of the *understanding the world* area of learning and development, and with the removal of this, further research into technology use practices would be beneficial.

The requirements of the EYFS framework are a significant element of the network around practitioners' views and decisions about using technology. Setting budgets, practitioner training, personal views about technology, constructed from various sources are also impactful. The opinions examined in this section show that a network of actants construct practitioners' views on the changes to the EYFS, as shown here:

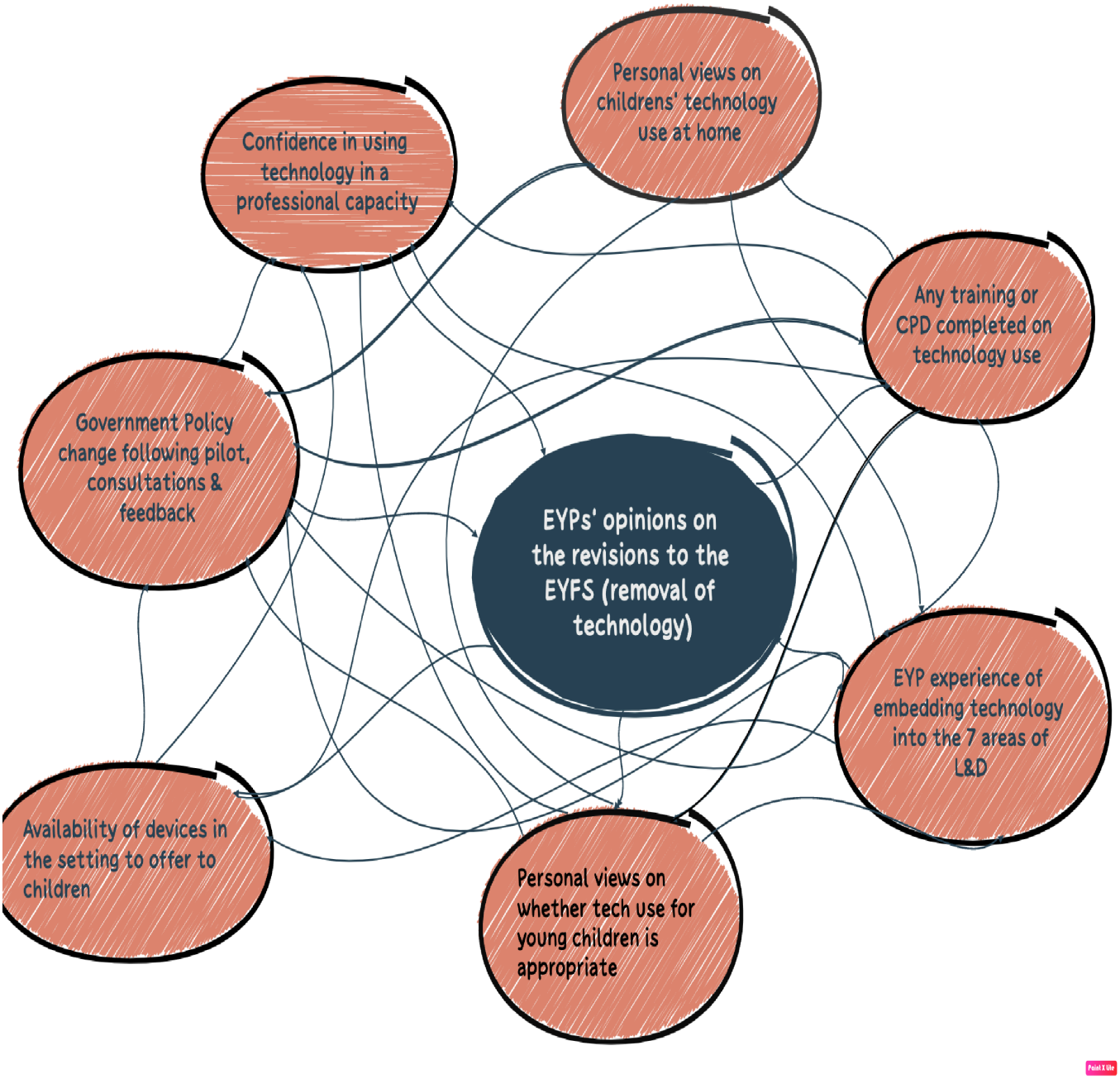


Diagram 6; Diagram using an ANT lens to view the network around EYP's views on changes to the EYFS inclusion of technology.

The diagram above shows the network between the changes to the EYFS in 2021, and the other actants in the network. As discussed in chapter four, Actor-Network theory allows these actants to have equal value, whether the actant is a living or non-living component in the network.

The practitioner's views were placed in the centre of this section of the network, as this was the focus of the data presented in this chapter. Another aspect of using an ANT lens is that it is easier to see how actants can act upon each other in a two-way flow system. As Law (2007) states, "Everything in the social and natural world has a continuously generated effect on the webs or relations within which they are located" (p.505). Law refers to the effects that these connections have to each other, whether the actants are living or non-living; the EYFS Policy change affects EYPs' creation of their curriculum; a non-living actant that affects human action. Yet EYPs action of seeking out and completing training can also affect their use of technology; practitioner's views of how children are using technology, may influence how they spend the setting's budget, and how much, if any is spent on replacing or repairing technology.

It is also possible to link these two actants in the opposite direction, by linking a setting's budget, and the restrictions made upon its spending by Governors, chairs and committees, or senior leaders and managers may influence practitioner's views on how children are using technology. If the setting has no working devices, the practitioner's view on a child using a tablet as part of an activity is going to be different to if the setting has a huge array of devices at hand if they are needed.

As discussed in chapter four, this ANT lens cannot offer any new, or test existing theory, and this is one of the criticisms of ANT. However, it can be a good tool for allowing a thorough examination of all the factors, or actants in a network, which may be connected to a situation, such as how practitioners' views and experiences affect their actions. As Law (2007) states, the objective is to understand how these things come together and stay together, even temporarily. The factors of the changes to the EYFS may be influential in this network for a number of years, until newly qualified practitioners are the majority of the workforce, and the 2021 EYFS is all they have known.

As Latour (1987) discussed, ANT can highlight assemblages and dis-assemblages of connections between actants. Currently, the EYFS changes and EYP action are connected by the existing knowledge of the 2017 EYFS and the changes to the 2021 EYFS, however, as the 2021 EYFS is used and new practitioners enter the sector, the old EYFS content and practice will become disconnected and no longer relevant.

The data highlighted a broad range of practitioner's views about the use of technology in early years provision. 48% of the responses were positive. Practitioners felt removing technology from the framework is a positive change, however, not all practitioners expressed intentions of continuing to implement technology as a tool in the same ways they use paper, pens, and paints across the curriculum; some expressed the view that technology was not needed, and they were happy it had been removed.

This poses a question about future provision. Based on my data, I believe we can assume some settings may reduce their technology provision over time if it is not a requirement to support children's technology use, as stated in the framework, practitioners who have these views that technology is not needed may feel their limited budgets are better spent on other resources, and I believe further investigation should be conducted in 12-18 months' time to explore how the EYFS changes have affected technology provision.

There are clear network links between the actants brought forward in this line of investigation. Changes to the EYFS framework have links to practitioner's views, opinions, and experiences, but also setting budgets and practitioner training. Latour (1987) referred to this translation (the process of human and non-human entities coming together to form connections) as nondeterministic; as entities come together, the connections are unpredictable; connections can be made based on other changing factors. Therefore, to ensure the changes to the EYFS framework do not negatively affect technology provision, all the other network links need to be addressed; practitioner's perspectives, which could be challenged and examined during training, and setting budgets to ensure technology does not become a resource which is secondary, and therefore not replaced or repaired. Latour (1987) would describe education as a mediator; an actant that can circulate throughout the network, but can transform, distort, modify, or create possibilities and occurrences. So, the education of EYPs in the use of technology could be used to modify and create possibilities to change the strongest actants in networks.

The other large event that occurred during my post graduate research journey was the COVID19 pandemic, and the data collected from practitioners about their experiences of working through this time is now presented.

6.3 Changes to provision and practice due to COVID-19.

Although COVID-19 was not a political issue, the Government's response, and subsequent practice guidance during the COVID-19 pandemic affected the education of children and

young people attending preschool through to university. Children and young people in England spent long periods of time at home, during several local and national lockdowns, and potentially short bursts of time in isolation. During these periods their learning experiences were disrupted, and technology was relied upon heavily to maintain a programme of education.

There is a growing body of research examining the effects of lockdown on children and young people (Bahn, 2020; Holmes *et al*. 2020); however, the voices and experiences of early years practitioners who worked during this pandemic have not been heard. This section presents data from practitioners' experiences of being keyworkers and continuing to care for the children of other keyworkers. Notably, their frustration, fears and anxieties for themselves and their families of having to be *on the front line* to care for children whose parents were also keyworkers, especially when all other educational institutions were closed, as discussed in chapter 3. This section includes practitioner's experiences of how technology was used during the COVID-19 pandemic and is some of the first data to emerge from this time.

Throughout 2020 and 2021, as the country moved through stages of lockdown and unlocking, new Government operational guidance was issued for practice in early years settings including, but not limited to guidance on working in bubbles with groups of children, cleaning equipment and sanitising settings, deep cleaning, hand washing, staff and child isolation, procedures for children who were displaying symptoms, testing, social distancing, contact with parents, showing potential families around the setting (DfE, 2021), the use of personal protective equipment (PPE), changes to what resources could be offered. Items such as soft cushions, blankets, playdough, sand, and water were initially thought to be areas where the virus could harbour and spread, so settings were advised to remove these from provision (Worcestershire Council, 2020). As discussed in chapter 3, these rapidly changing guidelines increased confusion and anxiety for EYPs who were already worried about contracting COVID-19 through contact with young children and their families and spreading this to their own household.

Using technology in the role of practitioner.

Of the 103 respondents, most reported using technology more as *part of their role* during the pandemic:

Has COVID-19 changed how you use technology as a practitioner?	
Yes	No
81%	19%

Table 6; has COVID-19 changed how you use technology as a practitioner?

81% of practitioners reported using technology more as part of their role, to communicate with parents, children, colleagues, and others whom they would usually speak with face to face, or on the phone.

> "*Yes, we use Famly now to improve communication with families*" (survey respondent 6).

> "*Yes, although we were already using it for most things, we are putting more info on for parents as our handovers are shorter. We are also using phone calls and zoom for meetings with parents about their children. We have offered a zoom call to all our families to have a catch up about their child's development*" (survey respondent 7).

> "*Yes. Much more screen time to my parents and the children spend more time communicating with friends that way too*" (survey respondent 8).

> "*We were communicating more through, like Tapestry. We were sort of sending ideas home presented to try at home while they were a bit bored. It was a bit boring*" (interviewee 5).

These respondents discussed methods of communicating with parents and families; some already had nursery software, and simply increased the use, and others purchased new software, just to allow deeper engagement with families during the period of lockdowns. One interviewee shared their experiences of how technology was being used by key people in the setting during the pandemic.

> "*Every week they make contact with their individual key children; they keep up to date with them, with videos, photos, activity ideas, and the parents can access our library of activities, and they can put forward observations of the things the children have been up to and staff then can move that over on to learning journeys, so I think by the time they return it will probably be common practice to see their key person on a phone screen, or to see…. I think we have been able to do that with Famly, sort of, from day 1, so it's become quite routine for them I think, to have a video from their key person,*

> *and send a video back, or photos etc, on a phone. They've been really good, and we obviously run a newsfeed, so all like, information, letters, anything like that is all on there, and it goes straight to the parent's phone on an app, the same as like parent mail at school, and once a week the manager or the deputy has put up a little video challenge each week, or "this is what I've been doing at home, can you give it a try at your home"… so it's become, again, used as a tool…. We're not saying, can you go on your phone and find this… were saying, can you do this, record it on your phone and share it with us*" (interviewee 3).

Another interviewee gave an example of how an activity, which would normally have been implemented face to face, had been changed to incorporate technology so children could continue to engage with learning at home.

> "*We have used technology to keep in contact because you can do it safely. So, we've used the playgroup, used our Facebook page, we have been taking photos we tried to carry on so we normally do caterpillars at this sort of time of year and more incorporate the story of the Hungry Caterpillar will watch caterpillars grow and turn into butterflies. So instead of doing that in front of the children, we've ordered it to do at home and we've taken photos and posted them on our website, you know that children can still experience; I know it's not the same thing a photo, but they still got, they can see what happens. And we've also posted worksheets for them to do colouring for them different activities that they can do to keep themselves busy at home. And it's also a support method as well. We've obviously the parents might be struggling. We've got the message support system to help them still"* (interviewee 4).

Not only were practitioners supporting their children and families with the job of continuing learning, practitioners also may have been spending time out of the setting, due to having to isolate themselves, being furloughed or settings having to close completely for short periods if there was an outbreak of COVID-19 in the setting. As these businesses had to continue to run for key worker children, and support children with SEND or who were considered vulnerable, the business could not close completely for very long, so communications needed to continue virtually. Practitioners often held staff meetings, team around the child and family meetings, meetings with outside professionals, and training via virtual communication software.

> "*Yes. We have used email communication much more, shared activities for home via closed Facebook page and have used zoom to share stories, hold staff meetings*" (survey respondent 11).

> "*Yes. All of our information (children's learning, first aid notifications, newsletters etc) are communicated by email. Parent discussions regarding progress held via zoom*" (survey respondent 23).

> "*It has been invaluable, I couldn't have coped without it, I use it every day to talk to them via our system, it has kept us together*" (survey respondent 45).

Respondent 45 discussed how technology was used to keep the staff team together, even when they could not be together physically. Others reported communicating more via telephone.

> *"Using phone, a lot more to communicate with parents and more meetings with professionals held on video call rather than in person*" (survey respondent 12),

Whereas other respondents preferred video calls.

> "*We use a lot more face time than we did before as we have been able to see each other rather than just hear a voice when we have not been able to leave our homes or visit each other. It has been more of a comfort*" (survey respondent 18).

Another use for virtual meetings was to ensure training and CPD continued to run.

> "*Yes, I've relied on it a lot more for Microsoft teams and zoom as all of our training and early years support is online now. We joined Twitter to share learning ideas and photos with parents*" (survey respondent 22).

Respondents discussed how they had been using technology to support parents who had their children at home.

> "*We are using it to enhance areas we would have previously relied on face-to-face contact*" (survey respondent 17).

> "*Yes, using tech much more zoom and capture education to send photos*" (survey respondent 20).

Some were implementing synchronous teaching sessions so children could still engage with their practitioner or teacher.

> "*Yes, even engaging with children through teams*" (survey respondent 25).

One interviewee described how her manager had asked her to record one video per week to share via Tapestry with her key children. She would go into the forest or somewhere else where she felt the children would enjoy seeing her and read a story whilst her older son recorded the storytelling. She then set her key children tasks to do with their parents, such as finding as many outside items as possible, which began with the letter "F" feathers, flowers, and to take a photo of these and post the photo onto Tapestry.

The respondent recalled how the parents had fed back to her, saying they had really appreciated these activities and ideas to share with their children. The respondent commented that she had really enjoyed making these videos and planned to continue recording them, as they could be used over and again, with groups of children in new academic years (reception class teaching assistant). Examples like this show how practitioners have reached and engaged their children during a time when they were not able to be with them in person, and that technology can be used as a tool for learning, even when not in a pandemic situation. However, it also highlights the steep learning curve some practitioners may have endured; practitioners may have had to acquire new skills to navigate nursery software or engage in social media for the first time.

The COVID-19 pandemic affected how practitioners used technology to ensure the day-today running of the business continued as efficiently and as close to previous practice as possible. Diagram 7 (below) illustrates factors that affected practitioners' use of technology during the COVID-19 pandemic.

Diagram 7; using an ANT lens to illustrate the network around practitioner's use of technology during COVID-19 lockdowns.

Diagram 7 shows the connections between factors that are not exclusive to the pandemic; budgets for supplying enough devices for practitioners to use, the confidence and experience of practitioners in using devices and software. However, these factors were altered because of the pandemic and the changes in location, depending on whether the practitioner was working in the setting or working from home. Practitioners had to learn to use new devices,

new software, new applications, often without colleague support as they were working from home. They had to learn to meet digitally with their team, outside professionals such as social workers, family support workers, speech and language therapists, and parents and carers.

For many practitioners, this was the first time they had met via Teams or Zoom. Settings had to provide staff with devices with which to continue the administration of the business from home, and staff had to continue providing teaching and learning opportunities to the children and families of the setting from home. As Latour (1987) notes, continuous effort is required to hold a network together. When changes occur (such as changes to working environments). This effort is required to 'bolster the breakages, and counter subterfuges" (p.11). In the case of EYPs using technology in their role, there was more effort required during COVID-19 to maintain connections, due to the changes of location, and fast learning of the use of new applications and software was necessary.

The responses also illustrate some deficits in availability of devices in some households. Some respondents included an awareness of the difficulties some families had with remote communications in their response:

> "*No, other than legal requirement to provide remote learning (most of our parents don't have computer access*)" (survey respondent 44).

This was a problem for children whose family did not have the resources for all children in the household to continue their learning at home. Many schools and educational settings had to provide families with additional devices. Unfortunately, the early years sector was not given priority for access to devices. Further, by 2021 there were 2 full academic year groups who had their transition into formal schooling affected by lockdowns, as shown by the diagram below which illustrates each year group's last year of face-to-face (or "normal") teaching year:

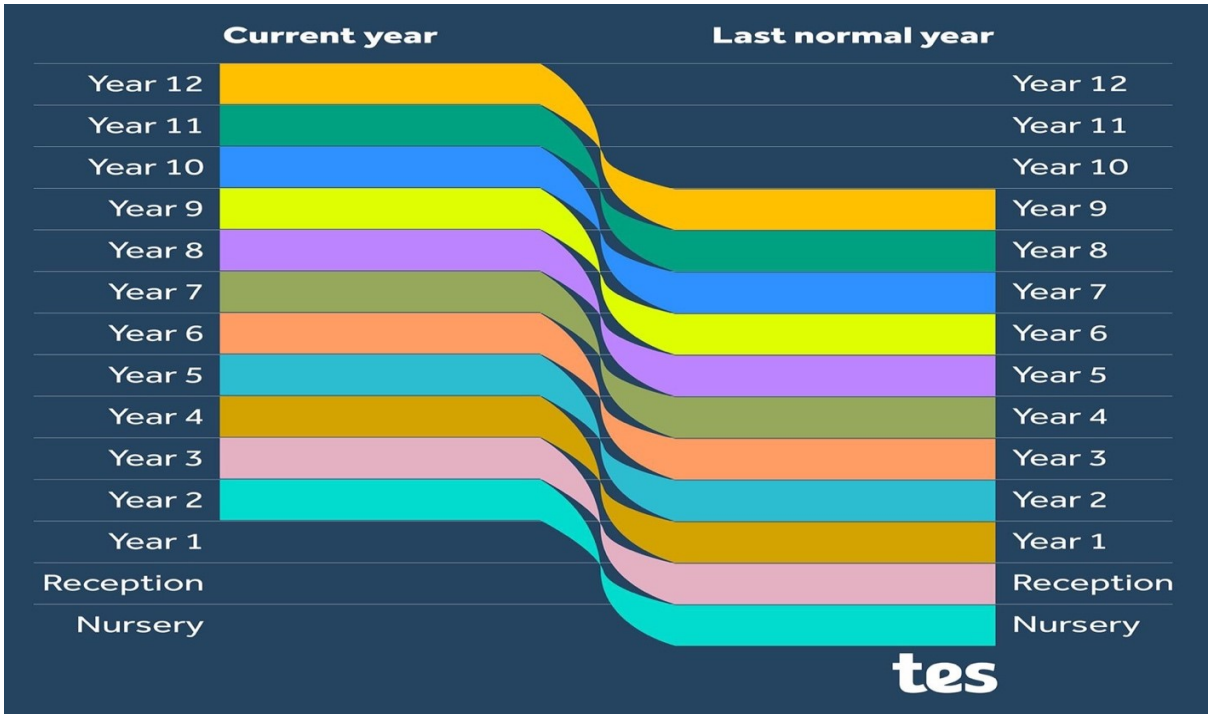


Diagram 8; Diagram illustrating the effects of COVID-19 on "normal schooling" by year group. (TES, 2021).

6.4 How <u>children</u> used technology *in the setting* during the pandemic.

Has COVID-19 changed how the children are using technology in the setting?	
Yes	No
30%	70%

Table 7; has COVID-19 changed how children are using technology in the setting?

More respondents (70%) reported children's technology use in the setting was the same during the COVID-19 lockdown periods, only 30% reported seeing a change in children using technology during COVID-19.

> "*They have become more dependent on tablets and viewing you tube*" (survey respondent 10).

> "*They are encouraged to be more au fait with the chosen programmes at home, with access in the setting too*" (survey respondent 13).

> "*Children seem to know how to operate the touch screen devices better - is this good? Debatable. Are parents finding this an easy childcare solution whilst working at home. Children don't seem to use it for information gathering. Mostly for games*" (survey respondent 23)

Although asked whether children's use of technology has changed within the setting, these respondents commented on technology use *at home*, rather than observations of how technology is being used *within the setting* environment. Either these comments were based on parents' reports on their child's activity, or whether they were based on evidence practitioners have gained cannot be confirmed. There is a growing body of evidence, which suggests children were spending increasing amounts of time using devices whilst at home in lockdown:

> *"It is widely assumed that screen time has significantly increased during lockdown. A survey conducted in the US found that nearly half of American children (aged 5 to 15) are spending more than six hours a day in front of a screen—a 500% increase on the time spent online before lockdown" (Dray, 2020, p. 1).*

Childwise reported children Aged 7 to 8 – spent two hours and 54 minutes per day online in 2020 (BBC, 2020). "*Primary and secondary students are each spending about 5 hours a day on average on home learning*" (IFS, 2020, p. 1). Whilst learning activities planned by teachers were intended to be completed during usual school hours (9am-3.30pm), reports show that children were spending leisure time online too. Martin (2020) reported that when combining education time and leisure time, children were spending on average 9 hours per day online, so it is possible that respondents who expressed opinions of children's increased use of devices at home were basing their views on this type of data.

Children choosing not to use technology.

Respondent 17 had noticed that children coming into the setting were favouring nontechnology activities and resources:

> "*Yes, children are less inclined to want to use technology and are reconnecting with creative experiences again*" (survey respondent 17).

Another interviewee discussed how technology was being used by the children in the setting.

> "*We've tried to not do any technology with them. Initially, we opened with only three children, from key workers. And then we grew to seven and now we're now, we've got 32 in over two over four days. We don't use any technology at all, really only what we're doing for the observations. So, the children are not really interested in access in any way. No one has kind of asked for anything. And we haven't only one little boy asked to print something but not to actually use like an iPad or anything like that himself. For us, no but at home probably has been more use*" (interviewee 6).

One interviewee predicted children's use of technology at home might result in them rejecting the use of technology in their nursery setting.

> "*So, I think the children, maybe will have accessed a lot more than they would do when they're with us…. So whether they will return wanting more than we did before, or whether possibly, it will be the complete opposite, and they really want to get back into the role play, or they want to be in the sand pit because they've had enough of wet rainy days; where they've been on a Kindle all day, so, it will be interesting to see how that goes when they all come back*" "*we will have to wait and see. I think we do find sometimes that children come in, and the things they don't have at home… they're the most exciting things… so it wouldn't surprise me if they're not phased, in the slightest, they're just ready to get back into emptying boxes*" (interviewee 3).

Using technology to reduce anxiety.

Another interviewee discussed how her setting needed to continue to use technology to help settle children.

> "*Some of our children with SEND will only settle with a familiar game or programme so technology is still very important*!" (Interviewee 7).

Using technology in this way allowed practitioners to reduce anxiety following periods away from the setting and ease transition back into the nursery environment, which was particularly difficult for children with SEND, or those entering the setting for the first time. Many pre-school children were born in the period of lockdown and have not experienced being away from their

parents. The familiarity of a cartoon, video or familiar game helped to settle them enough to allow the parent to leave them with their key person.

These responses demonstrate how technology was being used within settings, during and after the periods of lockdown. Some practitioners found children wanted to use technology as a familiar and comforting tool. Some found children wanted to engage in activities without technology involvement, possibly due to spending more time using technology at home. Some children wanted to use resources they had not had access to during lockdown. Other practitioners reported children needing to use technology to initially settle them back into the setting environment following longer periods at home. Although most practitioners reported children were using technology in settings in the same ways they did before the lockdowns, these responses show there were some purposeful changes to how technology was being used during this time.

Using technology within the guidance on cleaning.

One interviewee whom I spoke with during the pandemic, whose setting had closed for a short while, and then re-opened, shared her thoughts on how technology would be used by the children on their return.

> "*We've just opened again, most of our children would have been in the same bubble. There's only like one, one or two children, I would say that did that was crossover. And then we ended up with a midweek split of children. We always had some added Monday, Tuesday and then it always others that at the end of the week, that's why it would have been easy to sort of antibac and clean and you know, they will manage to be in their separate bubbles anyway*" (Interviewee 5).
>
> Interviewer: "*So you're still able to offer them (if they want to) the use of the technology as you would before*"?
>
> Interviewee 5: "*I think so. Yeah*".

The respondent discussed how the devices would need to be cleaned and sanitised to uphold Government guidance, affecting how they could share devices during this time. Interviewee 9 expressed similar consideration of how devices would be managed for cleaning and sanitation.

> "*What we're tending to do when we were in the bubbles, is, you know, children had the, you know, there was enough equipment for we had two bubbles, really, there was enough equipment for each and if they ever wanted to swap a particular piece, it was either cleaned or you know, wait 72 hours before swapping it over. And we have so much stuff. We couldn't possibly clean everything. So, we didn't we just kept it within our bubbles. And then you know, we have a sterilising regime that tends to go along the side anyway. So, there was no real difference to intend to do*" (interviewee 9).

Again, cleaning was a consideration for interviewee 10, reporting that they had not used their tablets with children during the first lockdown, due to concerns of harbouring and spreading the virus through cross contamination.

> "*I think it's had an effect because we haven't had our computer on for these last few weeks. Because obviously, that we have to clean everything out there is lots of cleaning involved at the moment*." "*So, they, they can still actually watch something on the computer on the on our tablet. But it's Yeah, it's not pressing all the buttons. And I think yes, technology has been sort of pushed to the side of you know, I mean, for a little bit*" (interviewee 10).

It appears cleaning was a prominent factor in practitioners' decisions about provision during the lockdown periods. The Government published guidance on what could be allowed in provision, and how resources, equipment and toys should be cleaned and kept within bubbles of children. This was evident in participants' responses, demonstrating that the guidance provided to settings impacted how technology was offered, and in some cases, removed from provision, either because the devices were believed to be a risk factor for harbouring the virus, not having enough devices to have one per bubble, or that technology was believed (by practitioners) to be an unnecessary resource during this time as children were using technology at home.

Sorensen (2009) complains about the *blindness* towards the question of how educational practice is affected by materials; COVID-19 illustrated just how vital materials such as technology and an internet connection were for education during lockdowns; not just for supporting children's learning, but to remain in business.

The changes to practice presented here show that the majority, (80%) of practitioners feel they used technology more during the COVID-19 pandemic to assist them in their role. The

Government's guidance during the pandemic influenced practice, including how practitioners used technology. Where children's use of technology during the COVID-19 pandemic is concerned, the construction of this reality was not only built on the Government's response to COVID-19 and guidance for practice, but also practitioners' opinions of how children should spend their time in the setting during these periods of lockdown, based how they believed children were spending their time at home.

The EYFS framework appeared to be less influential during this time. No practitioners mentioned the EYFS as part of their response to this question. It appeared that during lockdown, practitioners were less focussed on meeting the EYFS areas of learning and development and were more focussed on maintaining safety, health, hygiene, and infection control, and being mindful of children's and staff's mental health needs, so these factors took over as the predominant factors on deciding areas of provision.

Latour (2004) defined the equal value that human and non-human actants have in a network as *symmetry*. In networks, all actants are assumed to have the capability to exerting force and joining together; changing and being changed by each other. In this process, systems become more or less durable. In the example above, the EYFS framework became less able to exert force, and the pandemic practice guidance was more influential in EYPs decisions about how children would use technology in the setting. From these summaries, diagram 9 (below) depicts the actants influencing technology use during the COVID-19 pandemic and lockdowns:

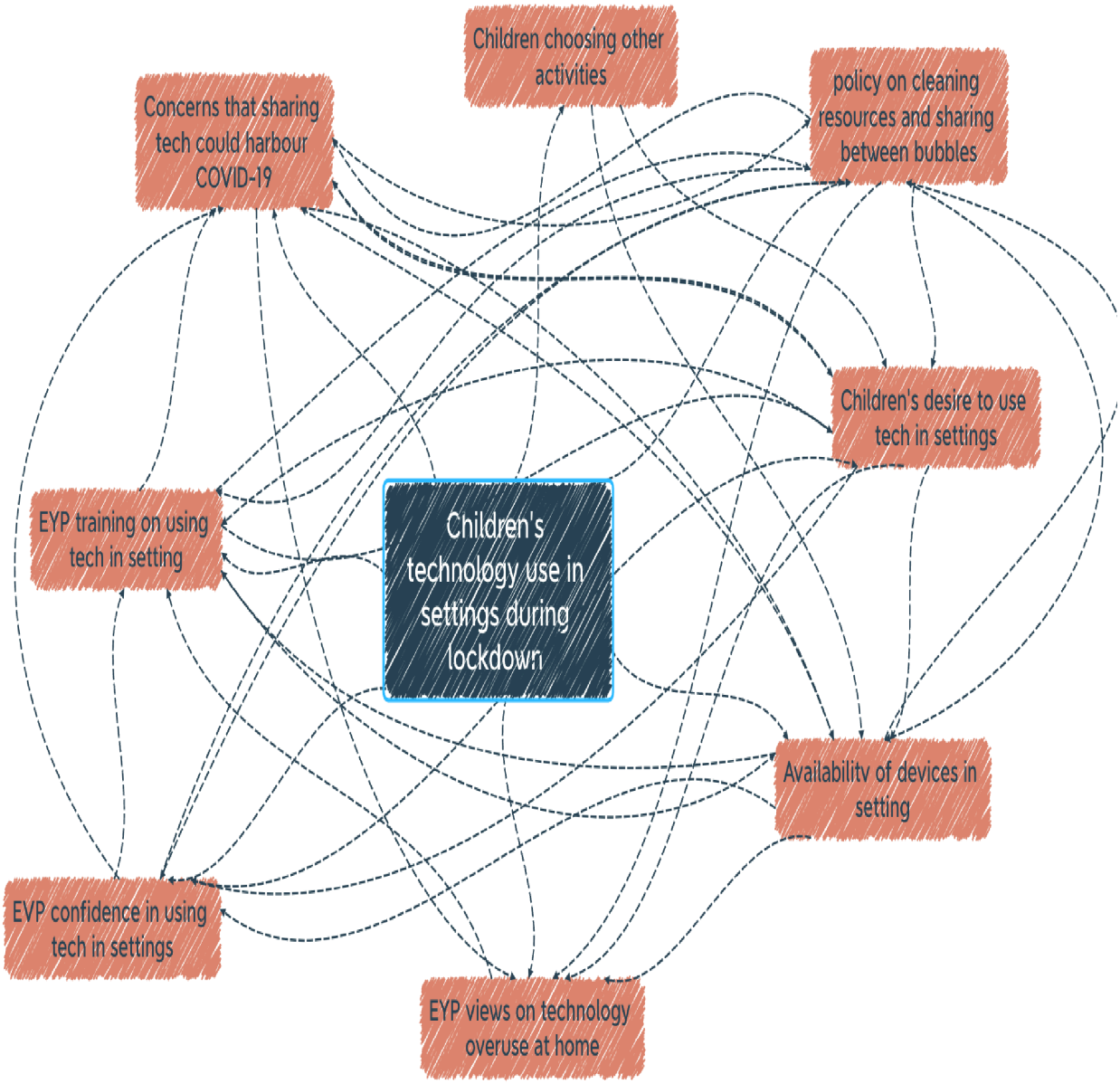


Diagram 9; Diagram using an ANT lens to illustrate the network around children's use of technology in settings during COVID-19 lockdowns.

Diagram 9 illustrates several factors which contributed to decisions as to whether technology should be offered as part of the provision for children whilst they were in setting during the periods of lockdown, or during times where children were accessing the setting during COVID19. The Government's changing policy on keeping children in bubbles sharing resources between bubbles affected how much access children had to certain resources. As respondents reported, some bubbles had devices they had exclusive access to, so children

were able to use devices within their bubble. However, if devices were sparse, and practitioners were concerned that sharing devices between bubbles, this was justification for not offering devices for use by children. This factor was directly influenced by the Government policy, which changed frequently.

Another contributing factor was practitioner's views on children spending lots of time at home on devices. Many practitioners reported this belief, and that this was a deciding factor on whether children should be accessing technology during their time in the setting. The final factor, which influenced practitioner's decisions, was whether they felt a device might help to settle anxious children on their return to the setting. Notably, the requirements of the EYFS framework became less influential during this time.

6.5 Conclusion.

In this chapter I examined practitioners' views on the changes to the EYFS (2021), specifically the removal of technology from the early learning goal *understanding the world*. Respondents gave mixed responses, with two thirds believing it was a positive change. Possible rationales were given by some respondents, with 2 main themes:

- Technology is used heavily at home, and therefore does not need to be a focus in early years settings.
- Practitioners should not see technology as a goal that needs to be taught as a subject; but a tool or medium that is embedded throughout all learning, as crayons, chalk and paint are used, and are not mentioned within the framework.

This second theme mirrors the Department for Education's response to their consultation feedback on the changes to the EYFS who state technology should be embedded across all seven areas of the framework. Technology is a tool, or *education technology* rather than practitioners needing to perform *technology education* (Siraj-Blatchford, 2015). This appears to be a progressive step towards acknowledging the value and importance of embedding technology into a multimodal learning environment (Arnott *et al.* 2019) and making technology a natural part of the ecology of the early years environment.

This change to a more natural inclusion of technology as a medium for learning, like chalks, paints, and pens, and interweaved seamlessly through a child led learning experience, with

technology readily available as a tool to support an activity or a learning situation, only works if practitioners are confident and competent at working with and supporting children with this technology. On reflection, my experiences of observing practice in schools and preschools leads me to believe there is still much to do to give practitioners the confidence to embed technology in this way. Practitioners' current levels of education, training, and confidence in using technology is examined further in chapter 8, to examine whether EYP training is preparing practitioners to offer this type of pedagogy.

If children are to have access to devices when it fits their learning experience, and not have to ask for access, there needs to be constant availability. However, setting leads and managers struggle to purchase and maintain devices as part of their provision. Therefore, the removal of technology from the EYFS appears to be supporting some practitioners' thoughts that technology does not need to be included in continuous provision, and this can lead to unbalanced and unequal levels of technology provision across settings. I have observed huge variations in provision during my visits to preschools and reception classes, and this highlights a need for a standardised approach to training for practitioners.

This unbalanced and uneven provision could lead to some children being disadvantaged on transitioning to year one and the national curriculum. As mentioned earlier, further research would be beneficial to follow up the experiences and views of teachers of key stage one, to explore their views. To discuss any differences in the abilities of children' technology use in year 1 and 2.

Another factor that changed provision of technology for some children was the changes in practice due to the COVID-19 pandemic. Respondents shared their experiences of how settings changed provision of technology for children. Some reduced their use of technology due to worries of keeping devices clean and the risk of spreading the virus from child to child through sharing devices. The practice of 'bubbles' of children also affected how some children used technology in the setting. If settings did not have enough devices to have one device per bubble, they decided not to use the devices at all. This meant for those 18 months, some children had limited use of the technology, which was previously available at the setting, and limited support on how to use technology in creative and innovative ways.

Children spent significant amounts of time in lockdown at home. Research is emerging on how children, even at preschool age used technology differently during these periods at home. However, my data is some of the first to emerge to show how children were using technology in settings to fulfil several purposes; for support in transitioning back into the setting, to reduce anxiety about being in the setting, and to create familiarity. Practitioners reported increasing their use of technology to continue contact with children, families, and other professionals

during this time, but some practitioners believed technology needed to be reduced for children who had spent lots of time using devices at home, so children needed to have alternative resources '*as a change'*.

Most practitioners reported using technology more as part of *their role* during COVID-19; to keep in touch with children and families, to share ideas and teaching and learning moments, to keep in touch with colleagues and outside professionals, even if some were isolating or furloughed, and to continue with training and keeping up to date with changes to guidance and legislation. Others discussed their implementation of new software packages to support this. Some settings purchased software such as *Tapestry* or *Famly* to help with digital communications. It is unlikely that once the pandemic ended, these settings would the use of this software, as it is expensive, and it makes administrative duties more streamlined and efficient, so it is likely COVID-19 has permanently changed how many settings communicate with their children, families, colleagues, and other professionals.

This highlights further, the need to ensure student and trainee practitioners are introduced to and trained to use these digital technologies to become confident and competent practitioners, able to step into a position in a setting with the skills, knowledge, and ability to use technology as part of their role.

When considering how COVID-19 has affected the use of technology, and whether the changes to the EYFS in September 2021 will affect the use of technology in settings further, the practitioners' views and practice have certainly been influenced by politics and policy, and this is evident in their responses. The realities of life in early years have been influenced, and therefore, in part, socially constructed by the politics and policies of the Government and the pandemic, which has swept the world. As Kukla (2000) explains, reality is constructed through human activity. In the examples presented here, the children's reality of the early years setting has been greatly affected by the pandemic, and changes to the early years framework which will have an impact on how children are prepared for, and transition into the next phase of their educational journey. Kukla (2000) adds that members of a society together invent the properties of their world. In the case of the early years setting of 2021, the data presented in this chapter suggests two factors that have contributed to constructing the early years classroom environment.

Firstly, a global pandemic, and the resulting Government guidelines that were designed to protect children, families and practitioners has shaped practice, including how technology is used, both within the setting, and to communicate with those who may be attached to the setting but who are not there physically. Secondly, the overarching framework, the EYFS

created in 2008 and recently revised in 2021 that shapes how practitioners create the curriculum, and practitioners apply pedagogy to implement that curriculum.

In conclusion, this chapter has given an insight into how politics and policy has played a part in influencing early years settings, and how practitioners and children use technology. This chapter has met research aim 3; to investigate practitioners' experiences of technology use during the COVID-19 pandemic, and research aim 4; to examine practitioners' views and opinions of the changes to the 2021 EYFS, and how technology use may be affected. The next chapter investigates whether practitioner's levels of training and education has affected their views and practices of using technology.

Chapter 7 Findings. Professional factors.

7.1 Introduction.

In this chapter I present findings gathered from the 103 respondents' on their qualifications, CPD and training (relevant to their profession) to reveal how many have received instruction on using technology as part of this training. Participants reveal how they use technology in their usual working day; for administrative duties, and how they support children to use technology as part of the setting's provision in line with the EYFS framework. The chapter also presents findings on practitioners' perspectives on whether they feel their training has helped them to perform duties that involve using technology.

The content of this chapter demonstrates meeting research aim 2:

- To examine practitioners' experiences of training, qualifications and continued professional development on using technology.

The 103 participants were made up of one focus group of a small team of EYPs who worked in a nursery in Ipswich, Suffolk. The data also comes from telephone interviews and online surveys which were responded to by EYPs working in settings across England.

To fully explore practitioners' experiences of training and qualifications, it was necessary to understand the content of the qualifications offered to trainee practitioners. Although as part of my day job I work with qualifications from awarding organisations NCFE CACHE and BTEC, I was not aware of the content of *all* available qualifications. I completed a review of the content of early years practitioner qualifications in England, to examine the level of teaching and assessment on using technology practitioners undergo, as part of their official training. The review highlights the minimal inclusion of technology in the main qualifications, and participants confirm this; with high proportions reporting having had very little training on using technology, even those qualifying within the last five years.

I examined respondents' views on their confidence in using technology, and possible links to other factors, such as age, and support from other sources is sought.

7.2 Qualifications held by respondents.

Of the 103 respondents, only 3 (3%) reported having no formal early years qualifications and were therefore classed as unqualified. No respondents reported holding a level 2 qualification; all qualifications reported were level 3 (early years educator) and above.

Qualifications were categorised into levels. Although some respondents replied with their full qualification title such as BA (Hons) in Early Childhood Education, or FdA in Early Years Practice, these were converted into qualification numbered levels. “Postgraduate” includes levels of masters, PhD, and any teaching qualification, such as Early Years Teacher Status (EYTS), Postgraduate Certificate in Education (PGCE) and Qualified Teacher Status (QTS). Level 6 refers to all qualifications at Honours degree level. Level 5 refers to Foundation degrees and vocational level 5 qualifications. Level 4 is either vocational level 4, Higher National Certificate or equivalent, level 3 is a vocational qualification such as the Early Years Educator.

Unqualified	Level 2	Level 3	Level 4	Level 5	Level 6	Postgraduate
3	0	24	8	14	21	33
3%	0%	23%	8%	14%	20%	32%

Table 8; Respondent’s’ qualification level.

Respondents demonstrated a fair representation of early years practitioners’ qualifications in England when compared to the range held during the 2019 Department for Education survey which reported a total of 36,3400 early years practitioners in England; 27% of these held a level 3 qualification (DfE, 2019). The 2019 DfE report does not include those in the workforce who have qualifications above degree level. When comparing the present study to the one conducted by the DfE in 2019, there are small differences in the employment brackets, however, the figures suggest the present study captured a fair representation of the qualifications held by the early years workforce in England.

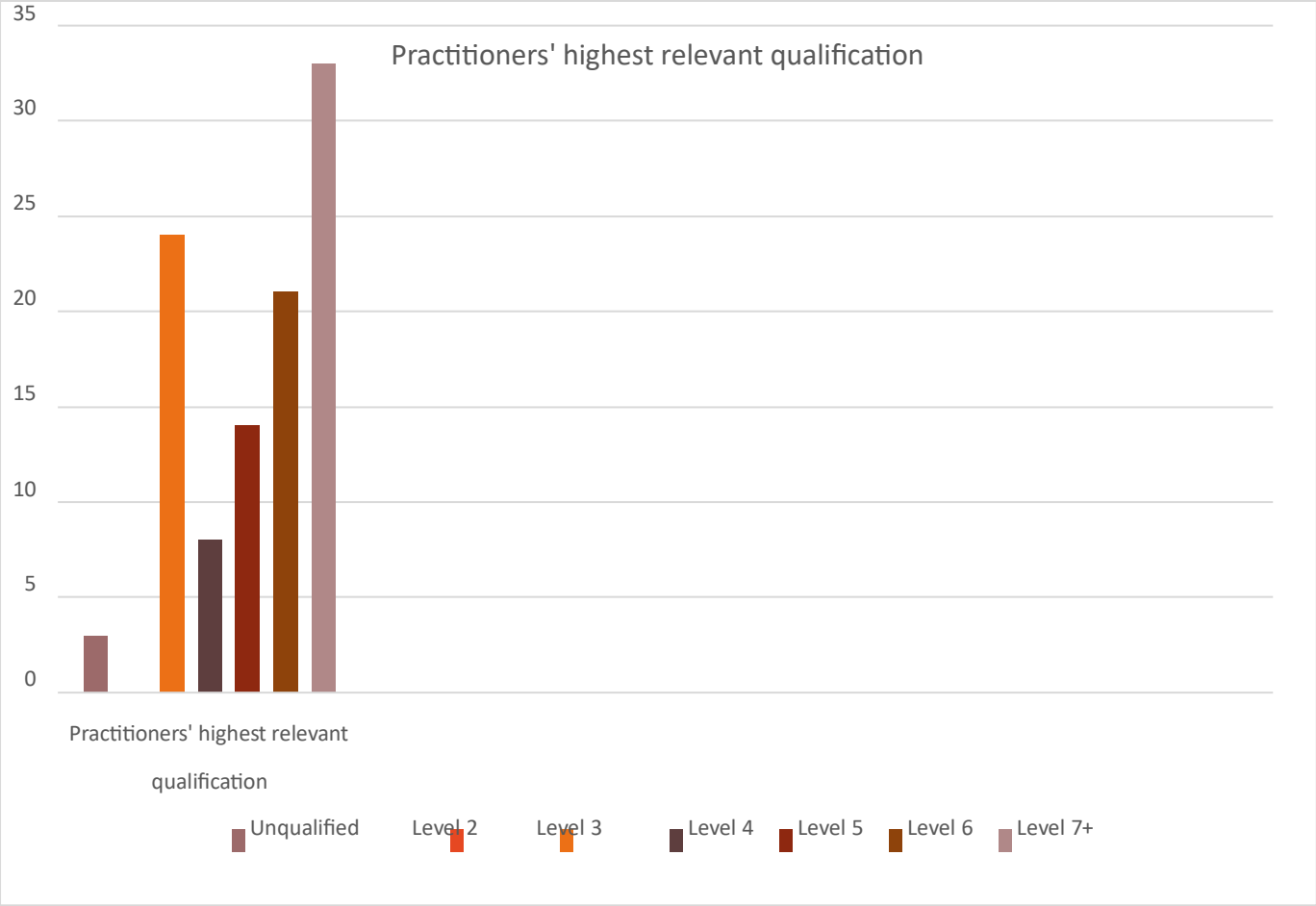


Diagram 10; Respondent's qualification level.

Data shows the respondents of this study were more likely to either hold a level 3 qualification or have gone further to study at degree and post graduate level. This is interesting as in the early years industry in England, a practitioner is considered *fully qualified* and able to take on senior roles such as room lead, deputy or manager positions, or specialist roles such as SENCO (Special Educational Needs Co-ordinator) or PANCO (Physical Activity and Nutrition Co-ordinator) with a level 3 qualification. There is no requirement, or indeed financial reward for gaining qualifications at a higher level. However, as described in chapter 3, it has been a goal of the Department for Education to achieve a graduate workforce within early years for many years. As Tickell (2011 p.42) stated:

> "*We must retain the aspiration and commitment to improve the quality of the early years workforce. I believe a minimum level 3 qualification for all practitioners, along with an ambition for the sector to become fully graduate-led, is one way to help achieve this".*

This goal is widely recognised within the industry, yet a financial incentive nor higher pay for graduates has emerged, and a practitioner with an honours or master's degree would still be on the same pay scale as a practitioner with a level 3 qualification if they were working *on the floor* as a practitioner. This is summarised in Murray & McDowall 's (2017 p.1) report:

"*Qualifications among the largely female young early education workforce have risen in recent years, yet policy requirements, status, pay, career pathways and conditions of service have not risen commensurately*."

As outlined in chapter 3, early years workforce pay is very low, with many EYPs who have trained for two or more years, and engage in CPD earning less than those in retail jobs that require no prior qualifications.

Gaunt (2020) reported these feelings of resentment, disillusionment and frustration were forcing qualified practitioners to reconsider their career options, meaning the sector is losing qualified and experienced practitioners into industries that are unrelated to the care and education of young children, aggravating the recruitment and staff retention crisis the early years sector experiencing (Early Years Workforce Commission, 2021).

Long before the pandemic, post level 3 qualifications had been changing within the early years industry; as discussed in chapter 2, early years care and education settings and curricula have evolved over the last 50 years, and early years practitioner qualifications have evolved alongside. Since the *Choice for parents, the best start for children* strategy, published in 2004, the Transformation Fund (2006) provided £250 million to transform early years practitioners' knowledge and skills. Then in 2007, the *graduate leader fund* provided a further £305 million in funding between April 2008 and March 2011 (CREC, 2019). These large Government investments were intended to facilitate every setting to employ a graduate practitioner to lead pedagogy by 2015. However, in 2018 the Education Policy Institute (EPI) reported that only 50% of 3–4-year-olds were attending settings led by graduates. Further, 44% of funded 2year-olds (funding offered to 2-year-olds who were considered 'vulnerable') were attending settings led by a graduate practitioner (Bonetti, 2018), and levels of unqualified staff were rising, contrary to the aspirations of the Government.

Alongside a graduate *led* workforce, the Nutbrown report *Foundations for Quality* (2012) advised *all* practitioners should be qualified to level 3, stating that level 2 qualifications were "*not sufficient to equip a practitioner for work in the early years*" (Nutbrown, 2012, p. 6). The Tickell (2011) review of the EYFS (2008) framework also referred to the qualifications of practitioners, identifying tension points in the existing qualifications system, again

recommending that the level 3 be the *minimum* qualification an early years practitioner should hold. It was recommended that the qualifications be reviewed to test strength and quality. Tickell recommended;

> *"That work continues to develop qualifications to meet the needs of all learners, including young people undertaking full-time college courses and those who have worked in the early years for a long time who wish to evidence their expertise and progress in line with the structure of qualifications discussed above" (Tickell, 2011, p. 46).*

7.3 Main qualifications in early years, and any inclusion of teaching and learning on technology use.

My data shows 97% of respondents have had formal training to gain nationally recognised early years qualification. 34 respondents (33%) stated their main or highest qualification did include some element of training on using technology, and 70 respondents (68%) said their highest or main qualification did not include any element of using technology.

Approximately two thirds of respondents reported not having any formal training during their main or highest qualification in using technology. This is a significant finding, as technology is such a fundamental part of our professional and personal everyday life, and up until the changes to the EYFS in 2021, using technology was still a part of the early years curriculum, where children were expected to have a range of opportunities to explore and use technology to build their understanding of how technology is embedded into the world around us, and be able to complete the early learning goal *understanding the world* which is to:

> *"Recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes" (DfE, 2012, p. 42).*

My respondents' comments about the lack of training in the use of technology was mirrored by Aubrey's (2014) study which found 65.8% of practitioners said that they had no ICT qualifications, although Aubrey examined IT qualifications as separate to their early years qualification. Further, in Jack's (2019) study, 66% of respondents reported feeling they had not had enough training on the use of technology, and 73.6% reported wanting more training.

These findings are important and need to be reported to awarding organisations so they can assess the need for updating or amending their qualification specifications.

To fully support awarding organisations, a skills gap analysis may be required to yield specific data on exactly where qualifications should be supporting practitioners to develop competencies in the use of technology. This thesis begins to highlight this gap and it is one of my recommendations that further research is conducted to inform qualification-awarding organisations of this.

7.4 Using technology in the role of practitioner.

Despite their lack of training, respondents reported having to use technology as part of their role as a practitioner; for administrative duties such as writing letters and emails to parents, the local authority, other education and health professionals, and other organisations to aid the smooth running of the setting. They also reported using technology to capture, record, monitor and report children's development, using a range of media, photographic evidence, social media platforms, software such as Tapestry, Famly, Blossom, Baby's days, and other early years management software, and recording and reporting data to the local authority, completing applications for funding, ordering supplies, marketing, researching, and producing resources for activities, and other duties.

Further, technology was reported to be used as a teaching and learning tool with the children; cameras, tablets, tech toys such as Bee-Bots, Vtech toys with lights and sounds, torches, light tables, interactive white boards were all reported to be used to investigate, research, enhance learning experiences, demonstrate cause and effect, and create, for example in dance, performance, technology-based art and design work, and baking. These duties mirrored the ones reported by Ludgate's (2018) study as discussed in chapter 4. Some respondents in my study reported having minimal IT skills, which sometimes hinders their ability to perform administrative tasks:

> *"When I left school there were 6 computers in the whole school! I have taught myself what I need to know for my admin, but I can't do anything special, like shapes and diagrams!"* (Interviewee 7).

Interviewee 2 reports similar minimal skills,

> *"We can use Word, and we can make columns, and we can create a table…."*.

Similar barriers were reported by respondents in Ludgate's (2018) and Jack's (2019) studies.

Some of my respondents reported a preference for paper and pen,

> "*We use paper documents; we write observations, and we have a camera to get a picture to stick into the learning journey. And we all believe like, paper learning journeys, a little bit more personal than a Tapestry learning journey. And I found this in my old setting, having to share a tablet with several other people trying to get observations, it was quite difficult*" (interviewee 11).

This respondent reported a preference for recording children's progress with non- digital methods; as device availability was an issue, it was easier to disregard technology as much as possible. The experiences from her last setting, where devices were sparse left a negative disposition to technology. Basquill's (2018) study found similar negative experiences of using technology had left one practitioner with adverse bias towards using technology. Basquill's (2018) respondent shared an experience from a course of study which was particularly demanding; the thought of using the laptop again brought back this memory of study, putting the practitioner off using technology altogether, meaning technology use was minimal in all aspects of their work. Negative experiences from past technology use leads to avoidance (Mumtaz, 2000) and a negative disposition to future use (Sang *et al*. 2011).

Of the 103 respondents, only one reported their setting used no technology at all. Further, a single respondent stated their setting only used 1 item of technology as a tool for staff to record children's progress, and a further one respondent reported no technology was used by staff in their administrative duties, but children had access to torches, but no other technology. The remaining 100 respondents (97%) reported using a range of technology in their practitioner role, and with the children, yet two thirds of respondents reported having no formal training on the use of technology. These figures show that it can be expected that, as part of the role of early years practitioner, using technology will be highly likely, and a variety of functions may be required. It is surprising then, that awarding organisations do not include much content on

this topic as part of the qualification; the content of vocational qualifications is examined in the next section.

As discussed in chapter 2, Deering (2016) and Broadfoot (2002) discussed how the curriculum of England's education system is based on outdated models and does not fit the demands of modern employment. My respondents support this by describing low levels of preparation for technology use within their qualifications that are designed to prepare them for roles where technology is used for a range of duties.

The next section outlines the training undertaken by practitioners, and how these qualifications prepare them for the world of work.

7.5 The range of early years qualifications and training in England.

When looking into the content of early childhood studies degree programmes in England, the level of technology content varies. Although universities write their own content for individual modules, there are benchmarks for degree programmes which do mention that within the whole early childhood studies programme, it would be expected students would demonstrate being competent in using technology with children; the term 'technology' is mentioned in this context twice in the Early Childhood Studies programme benchmark document (QAA, 2019). However, the course team would decide how much content, and how the assessment of this topic would be included in the programme. One Early Childhood Studies degree may contain different modules to a degree with the same title offered at a different university.

Conversely, vocational qualifications are structured with overarching specifications, containing specific knowledge and skills criteria, which must be covered by all training providers offering the qualification. Therefore, in effect, one training provider offering the NCFE CACHE level 4 Early Years Advanced Practitioner qualification must cover the same content as another training provider. How this is delivered is left to the training provider, but a student who completed the qualification in a London college would have covered the same assessment criteria and content as a student who completed the course in a college in Suffolk. This aids the examination of the content of these qualifications for inclusion of the use of technology.

Reviewing the content of vocational qualification specifications.

A review was conducted to examine the content of the vocational qualifications offered to trainee early years practitioners in England, specifically content which relates to practitioners learning how to use technology as part of their early years practitioner role, and to enable them to support children using technology. Although not a systematic review, criteria for inclusion in the review was as follows:

- The qualification be awarded by a recognised awarding organisation in England.
- The qualification be one of the suite of qualifications accepted as a recognised qualification to work in early years settings in England; level 2 EYP, level 3 EYE, level 4 and 5 qualifications which include a licence to practice approved by the Department for Education.

The Department for Education's early years qualifications checker spreadsheets were used to identify relevant awarding organisations and qualifications, as this gives a definitive list of qualifications accepted by the Department for Education (DfE, 2021).

Recognised awarding organisations.

There are 10 awarding organisations recognised and regulated by OFQUAL as offering recognised qualifications in early years and childcare in England (Gov.UK, 2020):

1. BIIAB (British Institute of Innkeeping)
2. Pearson BTEC
3. City & Guilds
4. Future Quals
5. Focus Awards
6. NCFE CACHE
7. ICan Qualifications
8. Innovate Awarding
9. Skillsfirst
10. TQUK (Training Qualifications UK)

Only those qualifications recognised and accepted in early years settings were included (the suite of qualifications for early years practitioner level 2 EYP and early years educator level three EYE qualifications), and only relevant level 4 and 5 qualifications. These are the acceptable qualifications since the streamlining of early years and childcare qualifications (Nursery World, 2018).

The review was conducted by manually examining each of the accepted qualifications course specification documents. Specifications were examined for key terms. These key terms were:

- Technologies
- Technology
- Digital
- ICT
- Tech
- Digital literacy
- IT

From the key terms data (see appendix 10), the following outcomes emerged.

Awarding organisation	Level of inclusion of technology use within the learning outcomes and assessment criteria
BIIAB	Technology is only mentioned in their level 2 qualification EYP. One assessment criterion requires the student to demonstrate competence and knowledge in the role of the EYP using technology. This may be assessed via a professional discussion, written work, or a reflective journal entry. Only one piece of evidence would be required to demonstrate competency in this area, as the section is one part of a larger criterion. The requirement is very broad with no specific instructions. It would be left to the training provider to decide how they wished the student to demonstrate this, so all training providers could cover this differently.

Pearson BTEC	One part of one criterion mentions technology. In the level 2 EYP qualification in an online safety or online bullying context. In the level 3 EYE qualification, the focus is on how technology is included in the framework under the learning outcome "understanding the world"; these are again, small parts of a single criterion, which may only be assessed with one piece of evidence. Their higher-level certificate/ diploma qualification, level 5, has the potential for the learner to focus a whole research project on the impact of new technologies, however, digital technologies is one of a range of topics the learner could choose, so they may not be assessed on this topic at all. Further, in the qualification, there is some "essential teaching" about how digital play theory helps us to understand how children learn through digital play, but it is not something that needs to be assessed, just included in the teaching curriculum.
City and Guilds	Level 2 EYP has minimal content on the use of technology, focussed on the practitioner's roles and responsibilities to use technology in line with organisational

	policy. There was nothing in either the level 2 or 3 qualification specifications about using technology with children, or as part of the role of the practitioner.
Future Quals	The only relevant qualification offered by this company is the level 3 EYE. The qualification assesses no knowledge or skills on the use of technology in any capacity.
Focus Awards Ltd.	This company offer the level 3 EYE qualification and a level 5 Diploma in Leadership for Health and Social Care and Children and Young People's Services; of which contain neither any learning or assessment on using technology in the role of the practitioner or using technology with children.
NCFE CACHE	All levels of the CACHE qualifications have some content on using technology. However, each level still has minimal content, with minimal skills or knowledge assessed at each level. Having experienced teaching and assessing on these CACHE qualifications, I am aware that students may only need to plan, implement, and evaluate one activity that is based on an activity using technology with children. This is very limiting when one considers the vast array of technology used in the practitioner role, and the role of "teacher" when supporting children in using technology.

Ican Qualifications UK (IQC)	Level 2 and 3 qualifications have a small amount of content to prepare learners for using technology in early years settings; in the level 2 qualification in the context of safeguarding, and the level 3 qualification the inclusion of technology is part of larger criterion, meaning there would only be minimal inclusion of technology as a standalone topic.
Innovate awarding (IQO)	Only the level 2 EYP qualification had any content on using technology, and these were in the context of safeguarding children, and using technology safely in the role of the practitioner.
Skills first	The level 2 and 3 qualification both have some content around the use of technology, however the content is around safeguarding (online safety) and understanding the policies around the use of technology. There is no content about using technology as part of the role of the practitioner or using technology as a tool for teaching and learning.
Training Qualifications UK (TQUK)	Unfortunately, the detailed specifications for the level 2, 3 and 5 qualifications offered by TQUK are not available on their website so were unable to be included in the analysis.

Table 9. English awarding organisations early years qualifications content on technology use.

Conclusion of the content review.

The content review of the available qualifications from the 10 awarding organisations in England shows the lack of content on the use of technology, both in the role of the practitioner, and in using technology with children as a tool for teaching and learning. Qualifications with content was minimal, with typically one assessment on planning, implementation and evaluation of an activity that supports digital literacy. Most qualifications had some inclusion to demonstrate the learners' understanding or awareness of online safety, and being aware of setting policy on using technology, however, the assessment of these is not consistent across the awarding organisations.

It can be concluded from this review that the current early years practitioner (level 2), the early years educator (level 3), level 4, and the level 5 qualifications showed a distinct lack of content to prepare practitioners on the use of technology in their role as a practitioner. Neither do the

qualifications prepare practitioners to use technology as tools for teaching and learning with children in the classroom.

Online safety appears to be scant in the content of these qualifications, as does understanding how to build and maintain a positive personal and professional digital footprint. The knowledge and skill required to use technology for these duties was identified by senior practitioner and manager participants in my research as being markedly lacking in student and newly qualified practitioners. This supports academics who, as discussed in literature review chapter 2, describe the education curricula in modern England as outdated and ill preparing students to enter the workforce with the necessary skills to fulfil their duties.

Unfortunately, if awarding organisation's specifications have little content that needs to be assessed, as this review has demonstrated, it is difficult to gauge how much teaching would be included in the student's training. If there is little assessment on the topic of using technology to prepare the learner for, the college or training provider is not obliged to deliver any content on the topic. It would therefore be down to the college or training provider's choices, and the training provider or lecturer's own personal confidence and competence as to how much content is delivered on this topic. If, however, awarding organisations increased criteria to be assessed on these qualifications, tutors would need to include more teaching about technology use to prepare students for assessment. This would ensure learners received equal and standardised preparation on using technology and be better prepared for entering work environments that use technology regularly.

This review is based on qualifications being undertaken presently. These are the current and most recent qualifications available, yet qualifications undertaken by practitioners 3, 5,10 or twenty years ago would almost certainly have had even less content on the use of technology. Of course, twenty years ago, pre-school settings would have had less technology available to them. Children at preschool would not have had access to tablets, wearable tech or the internet, and children would have been using technology minimally at home. However, for those practitioners who qualified many years ago, their training would have contained even less content on the use of technology, and with little or no CPD to update their skills, they may be working with little digital literacy.

My data reflected this. 63% of respondents recalling their main qualification having no elements of learning how to use technology, either as a tool for teaching and learning with children, or for the administrative purposes within the role of practitioner. Interviewee one recalled completing her level 3 CACHE qualification in 2011 that included two instances of being asked to plan, implement, and evaluate activities where technology was used with

children. Interviewee 8, who completed her level 5 in 2017, recalls no inclusion of training or assessment within her main qualification.

For those who qualified earlier, for example, interviewee 4 who completed her BTEC level 3 qualification in 2004, and interviewee 10 whose level 3 qualification was completed in 2008 there was no recollection of any training or assessment in the use of technology. Jack & Higgins (2019) found that lower numbers (26.7% of practitioners in settings and 54.3% of childminders) had no technology training.

This lack of formal training for early years practitioners is coupled with the lack of guidance for practitioners working in settings. England continues to fail to produce its own official guidelines on activities and timescales for technology use, favouring the borrowing of guidance from other countries. The “Guiding Principles for Use of Technology with Early Learners” produced in 2016 by the Office of Educational Technology and the Department of Education (USA) is referenced as guidance by some organisations (Kimberley, 2016). U*nofficial* guidance by UK organisations is available if one searches for it, for example, PACEY’s 2016 *Supporting children to use technology safely* guidelines can be used for information and support for those who are actively looking for guidelines to use in their practice (PACEY, 2016). However there has been no official, overarching guidance for practitioners in how to implement and use technology within early years settings, and the most recent EYFS has even less content to support and guide practitioners on using technology effectively.

There is, however, a non-statutory document which was released with the EYFS curriculum in 2021; Birth to Five Matters (Birthtofivematters.org, 2021) which has support and guidance for practitioners, but as this is non statutory, setting managers and practitioners do not have to (by law) use this guide.

When considering the learning theories outlined in chapter 3, which examined how children learn, and develop competency and confidence, one could argue that not only is the lack of technology training affecting the practitioners, and their ability to carry out the day-to-day duties of their role, but the lack of inclusion of technology in EY qualifications may also be affecting the learning and development of children. As discussed, children learn from modelled and scaffolded support from adults around them and social learning experiences, using cultural tools, which includes technology. If practitioners are under skilled in the use of technology, they may be modelling this to children, and their pedagogies of scaffolding and identifying teachable moments may be lacking, resulting in poor teaching quality.

7.6 Post qualifying CPD.

Respondents' recollections of their training show a distinct lack of content that relates to using technology. Respondents also reported a lack of training within subsequent post qualification training and CPD. 59% of survey respondents gave a distinct *no* response to the questions *have you completed any training or CPD on using technology since qualifying*? Others responded with similar negative responses, such as "*only online safety training*" which reveals they have not received any specific training on working with different devices, applications, and software to enhance children's learning and development. In Marsh *et al's* (2017) white paper, this lack of training was identified as an intrinsic barrier to the use of technology, and findings by Blackwell *et al* (2013) suggests that as teachers of children in the 0-4 age bracket increase their CPD, the inclusion of technology in their teaching provision increases.

Training and CPD needs to not only support operational competence in using devices, but also support practitioner's knowledge and understanding of how to embed the use of technology into the activities and topics of focus. As Marsh *et al* (2017) explain, *"it is not sufficient to be able to use technology, practitioners need to be able to understand how technology can be used pedagogically in ways that are appropriate to the subject(s) being taught"* (Marsh et al. 2017, p. 5), therefore, enhancing practitioners Technological Pedagogical Content Knowledge (TPAK) (Voogt & McKinney, 2016). Marsh *et al* (2017) suggest that not only do practitioners need to understand how to use technology for administrative purposes, but also, they need to understand how to embed technology into play.

An example of this was given in chapter 4. Another example is a child outside looking at a snail. The practitioner suggests the child take a photo of the snail so they can enlarge the photo to examine and discuss the markings on the shell. A *next steps* activity may involve using the internet to find a video of how snails live, and exploring their life cycle, and bringing the snail into the setting so the children can share discussions about it. The technology should be incorporated into the activities seamlessly. The practitioner should be confident in the use of the devices that will enhance the experience for the child. This was supported by Jack (2019) whose respondents also reported that any training they received related to operational competency in the use of technology devices, rather than how to embed the use of technology into multi modal learning.

Post qualification training and continued professional development.

As discussed in chapter 3, the early years workforce in England has very little structure to their CPD and professional learning. It is expected that EYPs engage in CPD, yet the amount and content is not specified. EYPs are expected to choose appropriate topics for their professional learning. I asked participants if they had engaged in any CPD on the use of technology.

Respondents recalled training or professional development they had undertaken since qualifying with their highest, or main qualification. 36 respondents (35%) reported they had undertaken some training or CPD that included the use of technology; 67 respondents (65%) reported not having undertaken any training or CPD since qualifying.

These figures differ to the study conducted by Jack and Higgins (2019) in which 46.3% of early years practitioners in settings reported having had enough training. 26.7% of practitioners in settings and 54.3% of childminders had not had any training, while 75.9% and 54.3%, respectively, wanted more training.

Interviewee 4, in preparation for the interview went back through her training and CPD folder to double check the courses she had completed and concluded:

> *"I do a lot of courses on the educator website. And I scroll through it, and there's nothing for technology. which shocked me. Epic shock" (interviewee 4).*

More interviewees responded that they have had no post qualifying training: "*Nope. No, I think No, I don't at all really*" (interviewee 5). Some practitioners who participated in the study hold qualifications from 1981, 1989, 1992. In the world of technology much has changed in the last five years, let alone the last forty years, and yet this aspect of practice seems to be overlooked in both main qualifications, and subsequent CPD and training.

Respondents who did report having some additional training or CPD reported online safety training as the only *technology* training they had undertaken. Therefore, the quality of training undertaken by those 35% who answered *yes* to that question could be analysed into content and quality. Just because the respondents reported having undertaken some form of training or CPD that involved technology, this does not mean it contained content on using technology

as part of their role or using technology with the children as teaching and learning tools. Conversely, some teams reported accessing some online CPD training,

> *"there's an online one that was through virtue Educare that all of us engage with, because she's going online and like a two-hour thing where you get a little certificate at the end; just CPD and there was there a course I personally didn't do, but someone in the team from "Suffolk CPD online" to do with technology*". (Interviewee 6).

Others have tried to access training but experienced barriers,

> *"We were looking into an ICT course, it was, they were offering it as a course at the college (at the library). This was easy, this might have been about five years ago, that there wasn't enough people, I think, in the end, for them to justify doing the course*" (interviewee 7).

These findings show there is a significant lack of post qualification training available to practitioners as CPD or ongoing training. For those who do find courses, there are extrinsic barriers that may prevent the training proceeding. As Lesley (2019) found,

> *"It is being used to support the whole EYFS curriculum, but there are still barriers to its use and more training is needed" (p.10).*

A range of factors affects practitioner training and CPD. The levels of influence these factors have on training will change over time. Diagram 11 below depicts the networks between practitioner training and these factors through an ANT lens.

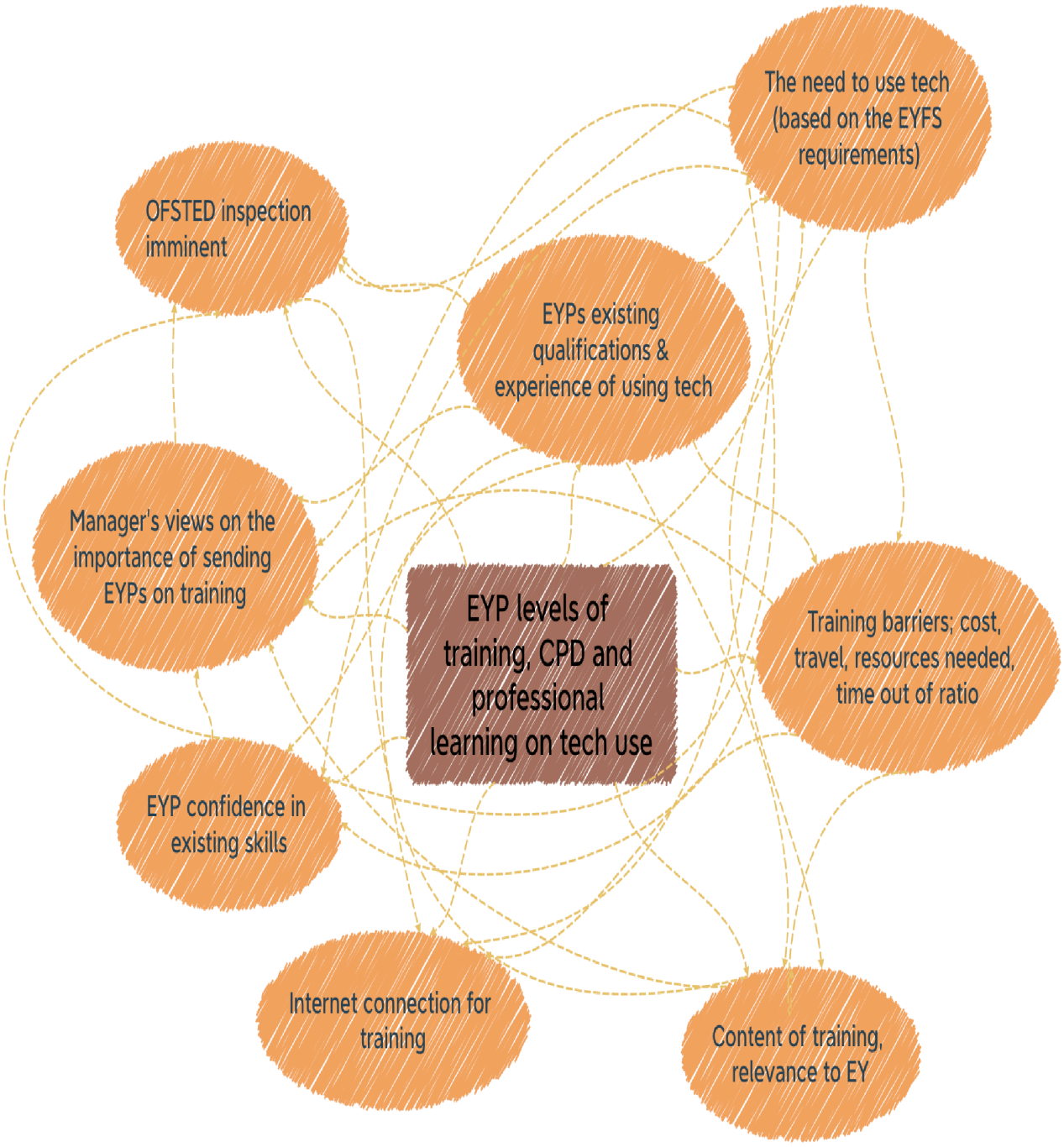


Diagram 11; Actor-Network theory lens to illustrate factors affecting practitioner's levels of training & CPD in using technology.

Diagram 11 above illustrates a range of factors that can affect practitioner levels of training and CPD for using technology. Many of these are interconnected and can be attributed to intrinsic factors, such as the practitioner's prior qualifications and experience of using technology, and whether a skills gap has been identified. McLean & Hassard (2004) argue that in ANT one can find some actants that are deep and sturdy. In education, one of these deep

and sturdy actants is that teachers and EYPs have some form of training prior to entering the workforce. However, the current and historical training programmes do not appear to contain sufficient content on the use of technology in the two strands set out in this thesis. Further, extrinsic factors including the cost of training; whether this is funded by the practitioner or the employer, having to travel to training venues, and if internet connection is required for online training and the quality of the connection.

Again, these factors are interconnected, and can vary in influence from time to time. For example, if the curriculum requires practitioners to teach children using a range of media including technology, this may increase demand for training in this subject. This may in turn change availability of training courses, cost, and training venues. It could also affect how many practitioners need to attend the training course, and if courses are running during working hours, this will in turn, affect their staffing ratios.

7.7 Confidence in using technology.

An identified factor that affects the use of technology is levels of confidence. Despite the lack of training and CPD available, most practitioners reported feeling confident about using technology. Survey responses were examined and categorised, as respondents had given a variety of adverbs to define their level of confidence in the use of technology within their role. Responses included *somewhat confident*, *50/50*, *and relatively confident*. The table below shows the responses that directly answer the question *how confident do you feel using technology as part of your role, or using technology with the children in your setting*?

Categorised adverbs	Very confident	Happy/ good/ confident	Average/ somewhat/ relatively/ 50/50/ moderately/ fairly/ quite/ pretty/ reasonably confident	Not very/ slightly confident
Events	11	11	26	5

Table 10; Levels of confidence in using technology, categorised by adverbs N: 53.

Data shows that most of the respondents who replied to this question reported feeling either very confident, confident, or somewhat confident in using technology within their role, with only 5 respondents (9.4%) reporting feeling not very confident, or slightly confident. These levels

of confidence mirror those in Jack's (2019) study where 97.9% of respondents reported feeling confident in using technology.

Interview respondents recalled how they have built up their confidence and competence in the use of technology.

> *"I came home, obviously, being really fresh in this job where, you know, I've never used technology in my role before. And I was like, well, I need to learn about this app (Baby's days), you know, what can it do? What can I do"?* (Interviewee 1).

Interviewee 1 taught herself how to use the application "Baby's days" by using a test account; exploring and navigating the site in her spare time, to teach herself how to use the functions. She now trains new members of staff, apprentices, and students during their induction period. Interviewee 7 recalled how her manager had to teach the whole team how to use Tapestry.

> "*Obviously, Sophie (manager), has been fantastic, and talked to us through every part of it. But she's, she's learned along with, with us all. And as Tapestry sort of updated as well, then we then have to learn to get used to the new format*" (interviewee 7).

Interviewee 6 explained how she trains apprentices to use their online learning journeys by giving them one key child, with a shared account they can use (with supervision) to record observations of the child, which is overseen by a mentor, a more senior practitioner.

> "*He (the apprentice) can only access his child at the minute while he completes his level two (apprenticeship), they do it together, right? And that works quite well because then he can take the pictures and add the pictures, but sometimes he doesn't know how to link the observations (to the EYFS areas of learning and development) and to do the different things, so they they've been working together*" (interviewee 6).

The levels of confidence reported in using technology come from learning as they go along; *on the job*; *trial and error,* and not coming into the job prepared for using the technology, software and applications that are seen as essential tools in many settings.

Interviewee 2 reported using a range of methods to teacher herself basic IT functions;

> "*So, you learn from other people, and you just find somebody that can help you, if you need something specific done. And YouTube's amazing*".

Using YouTube videos or tutorials to learn how to operate devices, software, applications were one method reported for self-instruction. Therefore, although EYP qualifications are not preparing staff for the use of technology, they are finding other ways to learn these skills; learning together as a team, learning from more experienced practitioners who act as mentors or guides, finding self-help methods such as tutorials online all seem to be replacing the traditional methods of formal training. These methods of learning about technology are mirrored in Basquill's (2018) study where respondents also reported learning skills thorough self-taught methods and using *expert colleagues* as mentors and coaches.

The model of learning through a champion or lead practitioner who cascades knowledge and skill to their team is successfully used by SENCOs and PANCOs in the sector. SENCOs and PANCOs undergo an initial training course to gain a qualification. To continue their learning and keep their knowledge up to date, they engage in research, face to face and online networking through (as discussed in chapter 3) communities of practice (CoP) or teacher communities (TC). The knowledge and skills they gain are cascaded to their team, to ensure all staff have sufficient knowledge and skill to fulfil their particular job roles.

I propose for technology use, the model of learning adopted for the roles of SENCO and PANCO would be appropriate, and beneficial for settings, especially as there is little national or local authority provision to teach EYPs about the use of technology. As discussed in chapter 3, other areas of provision (supporting emergent maths, supporting speech, language, and communication, supporting SEND or EAL) are catered for through workshops, training days and online support from local authorities, but the use of technology remains a forgotten aspect of the EYP role, so a model of training a champion or lead practitioner would support this aspect of the role.

For interviewee 5, her self-taught skills were also attributed to having a child of her own, whose tech toys allowed her to explore and develop skills in the use of a variety of toys, applications, and activities;

> "*And then having your own child that you've sort of work your way through doing things I think before I had "T" I hadn't used any of the tech toys, but now I've learned how to work these, and the downloadable apps and games which the children like at nursery*" (interviewee 5).

Linking confidence with other factors.

When examined with other factors, such as the levels of confidence practitioners have, and the opportunity to use technology, both for administration duties as part of their role, and tech toys and equipment used with the children, some of the respondents whose confidence levels were either in the u*nconfident* or only *slightly confident* category were examined. Notably, respondents who reported lower levels of confidence also reported having less access to technology to use either with the children, or in their role. Of those who reported feeling *not very confident*, the following responses were recorded to the questions "What technology do you use in your setting"?

> "*Children have torches nothing else*" (survey respondent 6).
>
> *"None*" (survey respondent 10).

Another respondent who reported feeling *very confident* in using technology for administrative purposes, but did not report any level of confidence in using technology with the children, also described the technology in the setting as:

> "*For staff - nursery management app and for portfolios. For children – none*" (survey respondent 13).

These few examples of a possible link between low levels of confidence, and minimal technology within the setting, are simply potential links. Cause and effect could not be determined with this data, and it would be difficult to determine a causal factor for levels of confidence, given there are so many variables, including training, factors from practitioners' professional and personal lives, availability of technology and other factors. However, it is interesting that some practitioners who reported feeling less confident have less opportunity

to use technology in their work than others, which supports Blackwell *et al's* (2013) suggestion that a lack of use of technology leads to decreased confidence in its use.

Another element, which is interesting with these three respondents, from the lower confidence level category, is that they reported having little or no training in the use of technology:

Survey respondent number	Level of confidence	Technology availability in setting	Training in the use of technology in main qualification	CPD or post qualifying training in technology
6	Not very confident	Torches for children	None	None
10	Not very confident	None	Yes	None
13	Confident in using for EYP role, no comment about use with children	Tech used for admin, none for children	None	None

Table 11 "Not very confident" responses and links with other factors.

It is unclear whether there is a connection between the level of technology available within the settings of these three respondents, and their level of confidence. One suggestion might be that technology has been reduced because of the lowered confidence levels of these practitioners, *or* the lower availability has reduced the levels of confidence.

Those who claim to feel *fairly, somewhat, quite,* or *very* confident report having a large range of technology for use by the children:

> "*Friction toys fidget toys dummy phones and remote cooking tools*" (survey respondent 11 who reports feeling "fairly" confident).

> "*IPads as a learning tool cameras CD player light boards sensory resources*" (survey respondent 17 who reports feeling confident).
>
> "*ICT toys with knobs and switches, old mobile phones, tv, remotes/dial phones/keyboards etc, torches, remote control toys, programmable toys, Vtech speak and spell type toys, x2 computers with a mouse, x4 tablets*" (survey respondent 42 who reports feeling fairly confident).

Formby's (2014) study found that practitioners working in PVI settings had more access to handheld devices than practitioners working in maintained nursery schools did, and practitioners in PVI settings reported higher levels of confidence in using technology. This could indicate a link between increased opportunity to use technology, and higher levels of confidence. Whether there is a connection or not, some practitioners have reported having absolutely no technology available for children in their early years settings, and as discussed in chapter 3, this can lead to unfair disadvantages for some groups of children.

Practitioner age and levels of confidence in using technology.

99 respondents disclosed their age, with ages ranging from 20 years old to 60 years old.

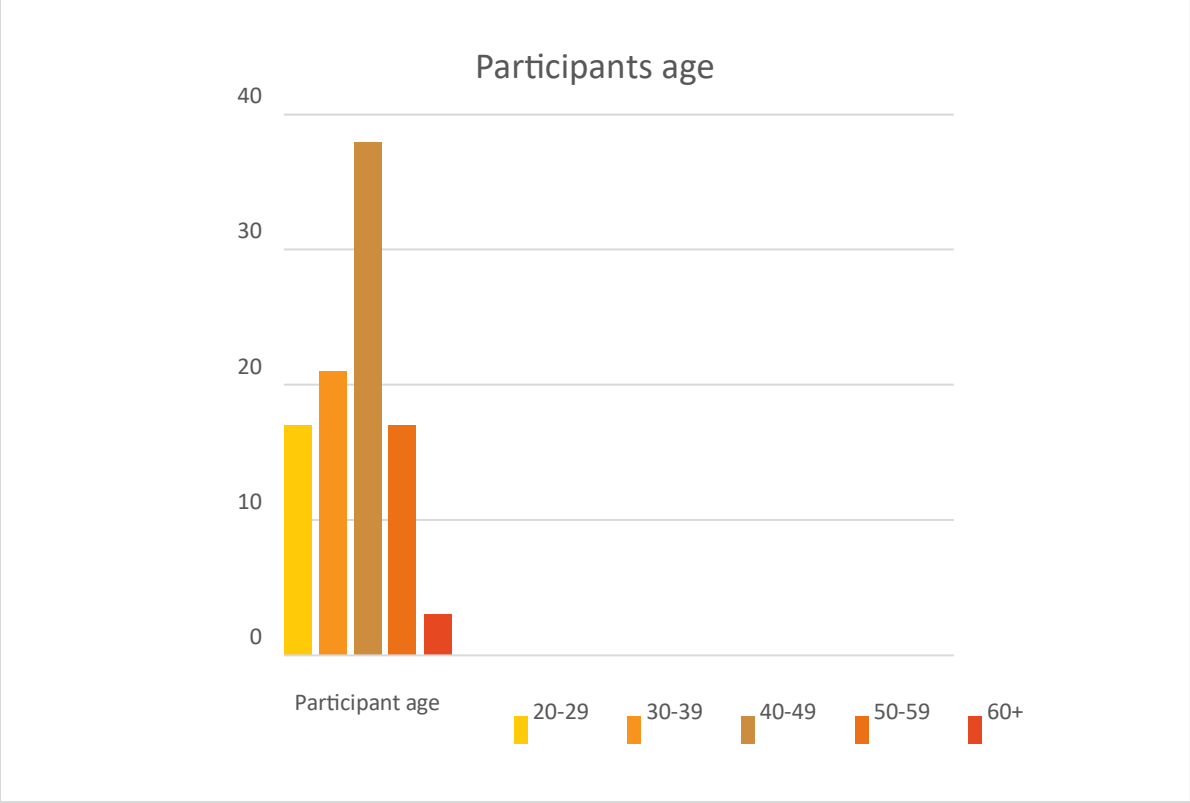


Diagram 12; participant age.

There is a broad mixture of confidence across the age ranges (as depicted in table 12 below). Participants were asked to describe their level of confidence. Participants mainly answered with an adverb followed by the word “confident”; the prevalence of these is shown below.

Description of confidence	Prevalence in whole study	Prevalence in age brackets
Not very confident	3	30-39 (2) 50-59 (1)
Slightly confident	1	30-39 (1)
Quite confident	12	20-29 (3) 30-39 (5) 40-49 (3) 60 (1)
Fairly/ moderately/ reasonably/ somewhat confident	30	20-29 (2) 30-39 (6) 40-49 (13) 50-59 (9)
Confident	19	20-29 (3) 30-39 (3) 40-49 (7) 50- 59 (4) 60 (1)
Very confident	28	20- 29 (6) 30-39 (6) 40-49 (13) 50-59 (3) 60+ (1)

Table 12; confidence levels with practitioner age.

These terms are subjective. It is difficult to quantify perception of confidence and skill, based on their subjective experience. For this study however, asking participants to describe how they feel about their level of confidence is simply to examine whether they feel able to perform tasks within the role of the practitioner and working with technology with children, and their descriptions help to determine where they situate themselves in terms of confidence.

Responses from the chart above (with 6 categories) were reduced to 4 groups:

Description of confidence	Prevalence in whole study	Prevalence in age brackets
Not very confident	3	30-39 (2) 50- 59 (1)
Quite/ slightly fairly/ moderately/ reasonably/ somewhat confident	43	20- 29 (5) 30-39 (12) 40-49 (16) 50-59 (9) 60 (1)
Confident	19	20-29 (3) 30-39 (3) 40-49 (7) 50- 59 (4) 60 (1)
Very confident	28	20- 29 (6) 30-39 (6) 40-49 (13) 50-59 (3) 60 (1)

Table 13; confidence levels with practitioner age, reduced categories.

When examining the levels of confidence in age brackets, the lowest age (20-29) bracket's confidence was evenly spread through *quite, fairly, moderately* confident, to *very confident*.

The 30-39 age bracket's confidence levels sat mainly in the *quite, fairly, moderately* category. The 40-49 age bracket's confidence levels were split between *quiet, fairly, moderate,* and *very* confident. The 50-59 age bracket appears to be evenly spread across the categories, as does the 60+-age bracket.

The levels of confidence reported by participants does not appear to have significant links to age. The confidence levels appear to be evenly spread across the age ranges. This is a positive finding; it suggests that practitioners across the age demographics can be confident in using technology, and that age does not have to be a factor in becoming confident.

Studies such as Vaportzis *et al* (2017) investigating confidence levels of older people and the use of technology in general show that lower confidence levels are attributed to certain barriers, such as lack of availability of devices and cost and lack of guidance on use. However, these barriers can be minimised so individuals of any age can learn to use technology, and if technology is used regularly, such as within a work environment, these skills will remain and develop further. Therefore, if all staff are given equal opportunities to learn and develop skills and competence in using technology, the age of the practitioner is irrelevant.

The diagram below depicts links to practitioner confidence illustrating the networks between these factors:

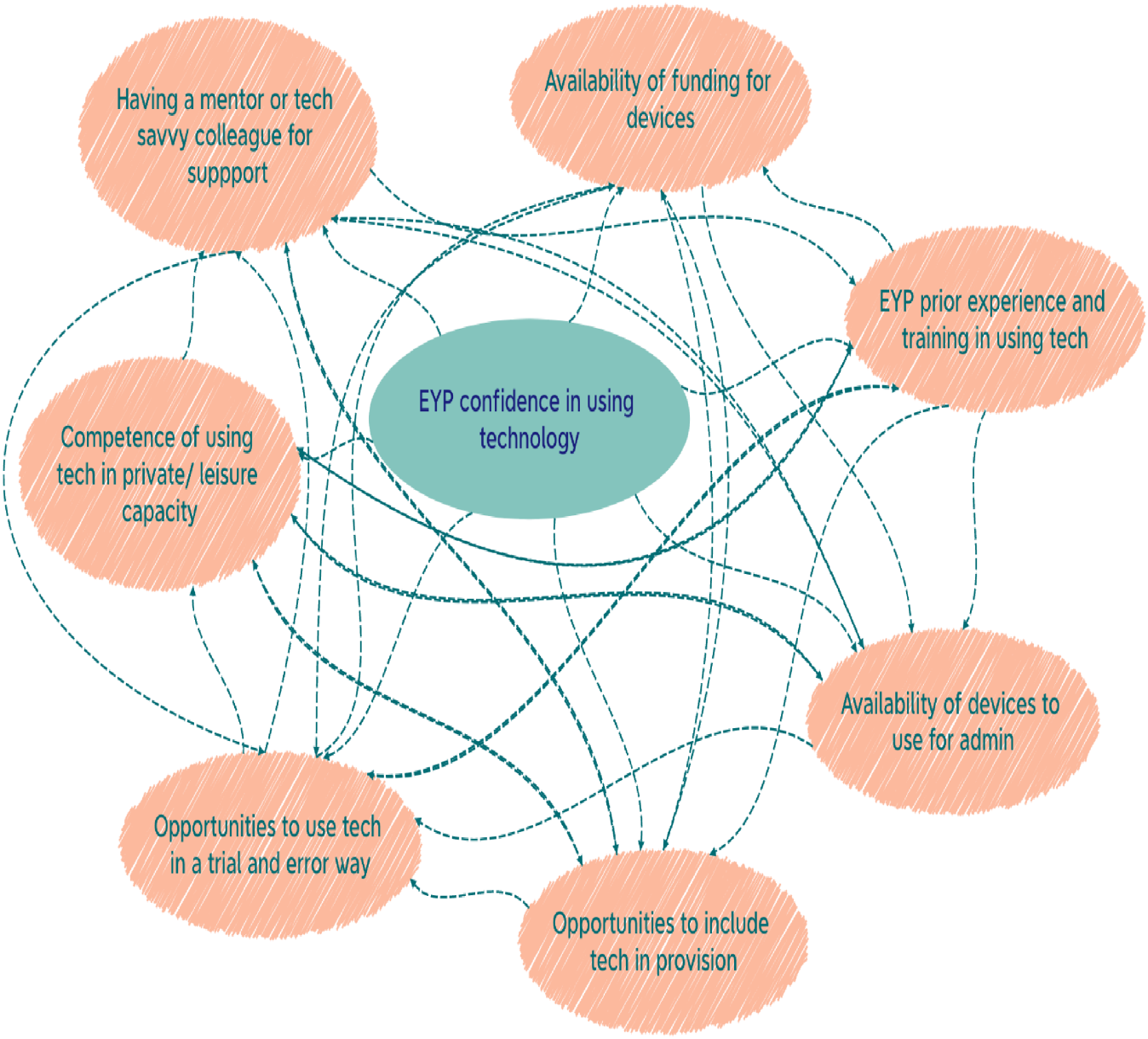


Diagram 13; using an Actor-network theory lens to illustrate factors affecting practitioner confidence levels in using technology.

The diagram illustrates how practitioner confidence in using technology can be affected by a range of factors. Again, intrinsic factors such as prior training and experience in using

technology, and prior opportunity to plan technology use into provision, and extrinsic factors such as the availability of devices in the setting to use for their admin duties, and to use with the children. As with all these networks, various factors can be more influential at particular times. For example, the availability of devices to use with children may be more significant at certain points in the year. If settings have budgets for new resources, there may be times in the year when devices are more available. If these devices become damaged during the year, they may not be repaired or replaced until new funds become available. Similarly, the opportunity to use technology with children may be influenced by the practitioner's planning of provision. If the setting uses objective focussed planning, they may be less flexible with changing provision to incorporate the use of technology than settings who follow *in the moment planning* where provision can be more fluid and change to respond to the situation or the activities choices of the child.

7.8 Technology used in the role of early years practitioner.

The use of traditional office technology in administrative duties.

Respondents reported using technology for a range of duties in an administrative capacity, for communication, marketing, meeting with parents and other professionals, ordering stock, collecting, analysing, sharing, and storing data. As Selwyn (2011) explains, technology assists teachers in the bureaucratic and procedural aspects of their job. Respondents reported using traditional office equipment such as laptops, PCs, telephones, printers, scanners, and digital cameras. Respondents shared anecdotes of when children had entered the office and used this equipment to develop and enhance their learning experience.

> "*Yesterday, we took the little boy to the office, and we found the picture that he wanted, and then that went from the computer to print... that was something and another boy came in… he also wanted some pictures, asking 'can I have one'? I said 'let me explain what happens'. And they think, it's like a magical tool that can go from the screen to the copier. So that you're not playing just something that kind of off the cuff, if something happens, and you want something they can come in, and we will make some pictures and we showed them how, then wait for a piece of paper to laminate it. They are*

> *interested in how it goes from the computer screen to the page*" (interviewee 6, PVI setting manager).

Another respondent recalled similar activity.

> "*If they went out on a walk, they might take the cameras out with them because the child is looking for something, and then they would take the cameras, because the idea is that the child is learning to capture something with the image, but another time, it might just be that during a conversation, a child's talking about dinosaurs, and saying what's the biggest dinosaur, and saying, "well, let's have a look and find the answer to that" using the laptop, you know it might be a bit more of a spontaneous use of technology, rather than a planned activity as such*" (interviewee 3, PVI setting manager).

Other respondents discussed how some of this equipment has been removed from the setting.

> "*We don't have computers anymore; we found that the children were becoming really de-skilled. And most of the time, they spent their time turning it off, and then getting stuck and not sure what to do or turning the screen upside down somehow. And more and more, we found they were unable to use a mouse and didn't know what to do. So actually, in consultation with some of the local primary schools, we had a discussion about whether they felt it, you know, it was useful for us to be investing the time in teaching these mouse skills. And they didn't feel it was it had any sort of relevance for the next stage that the children. So, we made the decision to get rid of the computers, and sort of focus our time elsewhere*" (interviewee 9, PVI setting manager).

Whilst Howard *et al* (2012 p.3) argued "*desktop computers remain a predominant form of ICT provision in early educational environments and are likely to do so for the foreseeable future*" ten years on, as technology advances, and become more mobile, desktop computers are viewed as constricting due to their static positioning and inability to take the technology wherever the learning is taking place, therefore stunting the flow of multimodal learning (Sakr, 2020), and compounding the argument that technology may be contributing to the decline in children's outdoor play and learning, where as a handheld device can be incorporated into activities that require children to be outside; taking photos of insects, taking audio recordings of bird song, or collecting Pokémon on a game or application on a tablet (Sakr, 2020) the desktop computer, with its inhibiting range for a shared experience, and outdated mouse functioning may well become obsolete within the early years classroom.

The discussion of the use of a mouse featured in other interviews.

> *"Sometimes the children need support, obviously, because we have a computer which uses a mouse. So, some children are unsure of how to use a mouse because I think computers have changed a lot. A lot of it's all touchscreen now isn't it" (interviewee 10, PVI setting practitioner).*

> *"You're finding that they're trying to swipe, swipe the screen? Yeah. When I mentioned 'mouse', there was a puppet. And they went back to move the mouse about, so they got a mouse the puppet and moved it around. Not many people have actually got one nowadays" (interviewee 2, PVI setting practitioner).*

The use of tablets.

Tablet devices are becoming more commonplace in settings, used in both administrative duties, and as a teaching and learning tool. Studies such as Ludgate's (2018) research in the West Midlands have focussed solely on the use of these devices, as these are fast becoming the dominant device in settings. This is due to their multipurpose abilities, used for administrative work, and for taking photos, updating learning journeys, and playing games, using apps and other learning activities, and the ease mobility for use in every part of the setting, inside and outside. When considering updating technology in a setting, investing in one device that can carry out a multitude of functions, rather than replacing separate cameras, laptops, desktop computers and tech toys makes financial sense.

Many use tablets whilst working with children, to capture images and enter data onto nursery software whilst *in the moment* with children at play. Tablets are light, portable, and can be used for multiple jobs at one time, making them ideal tools for taking photos whilst making notes and uploading documents to online learning journeys, instead of handwriting an observation, taking a photo on a camera, then having to compile the writing and photo onto a paper-based learning journey later on. Tablets save time and allows practitioners to be with the children.

When I was a practitioner, all learning journeys were paper based, and it took hours to write observations, match photos and handwritten annotations to long handwritten documents, link these to the framework by finding the relevant leaning outcomes yourself and sticking these

pieces of paper into paper learning journeys. I can see the benefits of having these digital software packages to help reduce the workload; that is, if the member of staff is trained and confident in using the technology. Some detailed accounts were given of how technology is used as a tool for their administrative duties.

> "*Each staff member has got their own kindle, as the setting supplied which they use for taking photos, observations, supporting the children's learning journey, so the children are very familiar with the staff using those in the setting as well*" (Interviewee 3, PVI setting manager).

> "*We use the "2simple" software. So that's obviously your iPad based, and then what we would do, because we don't share all our observations with parents, we create a kind of half termly summary, in a sort of cartoon page app, which we encourage parents to contribute to by sending photos and things like that. Then, although that's based on an app, it's printed out in a booklet that the children, you know, have permanent access to and can celebrate*". (Interviewee 9).

Online learning journeys are becoming more popular every year, and more settings are signing up to one of the many nursery software packages available. As Flewitt & Cowan (2019 p.2) explain:

> *"These multi-media forms of 'digital documentation' offer new possibilities to recognise, represent and value children's multiple signs of learning in new ways, and to share these narratives with parents and children".*

However, interviewee 1 felt children note the length of time practitioners have a tablet in their hand, and this could have negative consequences;

> "*We use technology for our online work and in general for children. So, they are often seeing an adult use an iPad to upload their photos and observations throughout the day. We do make sure that our setting (because we're very aware that for the children, it's the same parents on their phones at home). And their faces are always looking*

> *down during interaction with them. So, we all have in all those rooms one day a week where there are no iPads. And it's just time for children. And that rotates on a weekby-week basis. So, this week is a Thursday. So next week will be Friday*" (interviewee 1, PVI setting senior practitioner).

This respondent discussed how her setting had made the decision not to use tablets on certain days within the rooms with children, to model adults not engaging with technology, and being able to function without technology at hand. This was based on their observations of many parents always having their phones with them at drop off and pick up times. They felt the children needed to see adult role modelling *no technology* to the children. Interviewee 1 also reported her setting's policy of actively minimising the use of technology in the presence of the children and encouraging staff to update their documents and data in the staff room.

> "*The staff in the office use their laptops, the leaders will use their laptops where possible this is done in a private room away from the children, so again, they're limiting the amount that they see the children that they see the adults around them using technology. Because quite often we have children turn up in a buggy with a dummy and an iPad. So therefore, we don't like the children coming in and seeing all the adults sat there listening to an iPad, not talking to them, not interacting, not making eye contact, not looking out for their cues to read to try and limit how much they see us*". (Interviewee 1).

One respondent described how tablets are used as a distraction or to support during a transition time during the day.

> "*Then you'll have a few come over. And we'll have a little table sometimes with share on the iPad. So, we do that sometimes it's a turn, take an activity and say, okay, we'll have five minutes. So, you can have a go when you can have a go when we try not to use them continuously. It works quite well, because I think that excuse a little break sometimes if I'm caught outside and they come in and I can have five minutes just to sit down, have a drink or play on, you know, look at the iPad and play on it. So, I look at the pictures on there with our children when they've done activities. Yeah. And that was quite*

> *a popular thing, like someone like to make their friends and stuff on the photos"* (Interviewee 6, PVI setting practitioner).

78 of the 103 respondents reported their setting has some tablet or handheld device, such as iPads that the children can use, and that are used by the practitioners in their role. These high numbers were also evident in Ludgate's (2018) and Arnott's (2016) research. Desktop and laptop computers were reported less, and other office devices such as printers, photocopiers were used rarely with the children. However, children were welcomed into the office areas of settings, if they showed an interest in the office equipment, or asked specifically for a printout of a character, or something they could colour.

Respondents in senior practitioner and managerial positions noted newly qualified practitioners, apprentices and graduates are coming into employment with a lack of skills in completing tasks such as data entry. They felt awarding organisations could make changes to their course content to give (at least) an overview of online software packages, loosely incorporated into some criteria within the qualification to allow for changes in software packages as they are updated and developed by the software companies, making the transition into employment easier for newly qualified practitioners;

> "*I don't think she was prepared to know how much technology would play a part in a practitioner's role*" (interviewee 3).

Further, respondents working in either senior practitioner roles, or management roles reflected on the benefit of some inclusion in the childcare course content, to prepare those going into employment as qualified practitioners for using technology as part of their role. Interviewee 3 discussed the possibility of students having an opportunity to explore online software packages as "guests" or using a test account to learn how to navigate the platforms.

> *"I think that would be massively helpful. I know there's even ones (software packages), I know when I was childminding, there's lots of free ones, like I used to use one called Toucan Learn? So, if you have less than 10 children, it's free; so, you know, even things like that? If they were to research, find out what's out there; have a look and see, you know; if you were to be a childminder, what might you use? You know, because again, there's lots of nursery software out there, and obviously there's invoicing and stuff, which is done a lot higher up, but you know, I think on a daily basis,*

> *a lot of settings use online learning journeys and things, so, I mean, the other nursery I was at, I was a level 3, and there were four other girls, and so we were using (at level 3) that sort of software*". (Interviewee 3).

> *"I feel there is definitely a case for more technology training so we can maximise its full potential and find new and exciting ways to use it with the children*" (interviewee 9).

This mirrors the work of Goleman (1996) who, as discussed in the literature review stated that employers are finding increasing deficits in new employees in the skills required to fulfil basic duties in roles where technology is used.

Technology and safety.

Another manager explained she felt there needs to be more in the qualifications about using technology safely and to ensure compliance with policy and legislations;

> *"I think there should be a bit more on e-safety; I don't know if you do that? I don't know. But that might be. Yeah, quite often we have to tell students, you need to put your phone in the locker and also why they shouldn't have them on them. Using technology safely; definitely. Our apprentice thought that is okay to bring a phone in his pocket into the playrooms".* (Interviewee 6 and setting manager).

Following the Vanessa George serious case review in 2010, setting policies have changed how personal devices are stored and used on site (Mahadevan, 2004). Mobile phones, personal cameras, and now smart watches are often written into policies as forbidden in play and personal care areas, to adhere to safeguarding policy. This is taught as part of the standard safeguarding unit in any early years course. However, through my experiences of working with students, particularly younger students who may be school leavers completing level 2 or 3 courses, it may be taught in a safeguarding unit, but the student may not make the connection to what they have learned in college, and how this should be practiced in a setting. Therefore, they may appear to understand that policy is written as a safeguarding measure,

and policy dictates where devices with the ability to take photos can be used, but once they get into a *real-world* setting, they may not make that connection.

Adult learners, and those completing higher-level courses, such as level 4 and 5 will have more of an understanding of this, as they will be experienced practitioners, and possibly have written the policy themselves. Many older practitioners (such as I,) will also remember this case, the media attention it received, and as Phippen & Bond (2020) describe the *media storm* created around technology enabling this incident.

7.9 Are practitioners in opposition to technology?

The data have highlighted some of the barriers identified by practitioners that make the use of technology in their role more difficult. A lack of training for student practitioners makes the use of technology in their role more difficult, or they require additional training during their induction period; the issues of risk and online safety; beliefs that children are viewing practitioners spending increased time using tablets, which normalises this behaviour for them; issues of availability and cost.

These factors that influence whether practitioners are using technology to fulfil some of the duties of their role are valid and obviously affecting practice. However, Selwyn (2011) believes there may be other factors that influence practitioners' behaviour. In his book "*Education and Technology. Key Issues and Debates*", Selwyn describes other barriers that may affect practice; a concern about technology *failing* during an activity, resulting in blame, or a judgement that the practitioner is digitally illiterate, so rather than trying and failing, practitioners avoid using technology. Selwyn (2011) explains some practitioners may see technology as a threat to their role. If children can learn independently, their role may become obsolete.

Selwyn uses this argument for teachers and older children, but it can also be applied to younger children, although we may be a few years off robots who change nappies and rock children to sleep. As Selwyn admits, these ideas appear to be harsh, and place teachers in opposition with technology; the respondents of my study did not appear to have an opposition to technology to this extent.

7.10 The Socially constructed role of the early years practitioner.

The data presented here highlights how the role of the practitioner is constructed through the duties involved in caring for children and running a childcare business. The main duty of the early years practitioner is to care for and support the development of the children in their care. This main role is made up of many smaller duties; observing, monitoring, recording and panning activities to support the child's development and help them to prepare for the next stage of their learning journey, moving to primary school. Working with the parents of the child, and possibly other practitioners to support this learning and development and preparing an enabling environment for their learning and development. All these duties involve using technology to some degree, and therefore practitioners should have a level of competence and confidence in using technology.

The training practitioners complete to prepare them for this role is underpinned by qualifications created by awarding organisations, regulated by a government body (OFQUAL) to ensure standardised training which is monitored and amended to ensure practitioners receive relevant and up to date instruction and knowledge, ensuring practitioners' training prepares them for their role. We have seen that there is a large element of the role of an early years practitioner which is omitted from this training (using technology), and this could be affecting their ability to perform their role. When one considers the huge role technology plays in our lives, it may be that practitioner qualifications need reviewing to examine whether technology use needs more focus in these courses of training.

7.11 Conclusion.

In this chapter I examined respondents' qualifications, CPD and training on the use of technology. Qualified respondents were all qualified to at least level 3, meaning they held a formal qualification in early years. A review of the current English qualifications available for EYPs highlights the distinct lack of content to prepare practitioners to use technology, either as part of their role, or to support children's use of technology, despite EYP qualifications being updated in 2014 (for level 3) and 2019 (for level 2).

Through analysis of current main qualifications, subsequent CPD and an investigation into practitioner's perspectives on using technology in their role, I have highlighted some important points. There is a significant gap in main qualification content, which may be affecting practitioners' ability to carry out some of the duties expected of them as early years

practitioners; this supports the points examined in chapter 2 that the education system in England today is based on outdated models which are not preparing students to fulfil the duties of modern-day employment.

However, despite a lack of formal training on using technology, many practitioners reported feeling confident. This confidence comes from self- taught and peer taught skill. There was variation in how practitioners learn skills, and what skills were learned. Variation does not give children a standardised experience, which is what the aim of a national curriculum. For children to have a standardised experience, those teaching them must have had a standardised experience themselves in gaining the skills required to teach. I have therefore proposed, detailed in chapter 9, implications for practice and recommendations, that awarding organisations should review their qualifications to include more content on using technology, to ensure practitioners are fully equipped to perform this competently and safely, having had a standardised and regulated level of teaching and assessment as part of their training.

I examined how practitioners use technology to fulfil parts of their day-to-day duties. Senior staff and managers reported views that students and newly qualified practitioners lacked some basic skills in using technology in a professional capacity. Some reported concerns that young people's use of technology could in fact place the individual or setting at risk due to confidentiality and risky online behaviours. This is another important finding, highlighting a problem, which could be alleviated through a revision of the EYP qualifications.

Levels of confidence in practitioner's use of technology revealed a high percentage of practitioners felt confident in using technology, despite a lack of formal training. Their methods for learning how to use technology included trial and error, using self-help videos and tutorials on YouTube, and accessing more skilled colleagues who could guide them. Possible reasons for feeling unconfident in using technology were explored, and a barrier to training was one of the highest reported reasons for not being confident in using technology. Other reasons included having limited opportunity to practice using technology, and a lack of general need to use it. Thankfully, the data shows that age is not a factor in levels of confidence, with respondents from all age groups feeling confident in using technology. The chapter reported that regardless of practitioner age (which is something no one could change), if practitioners had opportunity to practice, and availability of devices, they felt confident; and opportunity and availability *can* be changed.

In this chapter I addressed research aim 2, examining practitioners' experiences and views on how they use technology within their role, and how their training and qualifications have prepared them for this. The next chapter examines practitioners' personal views and experiences of children's use of technology.

Chapter 8 Findings. Personal factors that influence practitioners' views on children's use of technology.

8.1 Introduction

In this chapter I present the findings from 103 participants on personal factors that may influence practitioners' views and experiences of using technology. Levels of confidence were examined, along with personal factors such as general views on children's use of technology, both inside the setting, and outside in public spaces. Practitioner age and whether the practitioner had children of their own were examined as potential factors that may influence the views.

The content of this chapter demonstrates meeting research aim 1:

- To explore practitioners' perspectives on the use of technology by children in early years settings, and outside of the setting.

The 103 participants were made up of one focus group of a small team of EYPs who worked in a nursery in Ipswich, Suffolk. The data also comes from telephone interviews and online surveys which were responded to by EYPs working in settings across England.

The views of practitioners on the use of technology within settings is almost certainly influenced by their views of technology in general; as early years teacher Emma Davis points out "*as practitioners, we all have different life experiences which influence our values and perspectives*" (Davis, 2020, p. 1). These experiences and views will affect our judgments, and this could be detrimental to the learning and experiences of children who may not have a digitally rich home environment.

8.2 Views on the use of technology within early years settings.

The question *what is your view on children's use of technology within the early years setting* was asked as an open- ended question. Respondents offered a short description of their

thoughts and views. To present the findings, an analysis of the language used by practitioners within these open-ended responses was carried out, and the language was categorised into positive, negative, and neutral categories.

Positive views	Negative views	Neutral views
40	20	42

Table 14; Practitioner views on children's technology use within the setting.

These figures show 80% of respondents have a positive or neutral disposition to children's technology use in settings. This is a positive step forward, since previous literature has shown EYPs historically have more negative views, or criticise children's technology, stating the use of technology made little or no impact on children's learning experiences (Cristia *et al*, 2012; Warschauer & Ames,2010; Trucano, 2005). This data may be a sign that the cyber sceptics discussed in chapter 4 are changing their views about children's technology use. Of course, one cannot generalise about the views of all EYPs based on the responses of 102 participants of this study. However, it does suggest that EYPs' views may be evolving, and this might be due to changes in the constructions of their own realities as EYPs. The political, professional, and personal factors examined in these chapters all help to construct EYPs realities of tech use, and providing EYPs with resources and support to inform their opinions will ultimately improve outcomes for children.

Comments included in the positive category.

Positive views were those which included key terms such as *necessity, a positive learning tool, useful.* Respondents reported views such as;

> *"I think we should not shy away from using technology with children, many of them already use technology at home from a young age and we should harness this existing knowledge they have and use it to take learning further*" (survey respondent 39),

> "*I think it's a necessity as children's lives are full of technology*" (survey respondent 62).

> "*Great as an expansion tool / resource for extending learning / looking up facts*" (survey respondent 53),

> *"It's great for information gathering and learning and experiencing things you can't get from books*" (survey respondent 51).

There were comments about how practitioners feel technology has an important place in young children's learning, but barriers such as training and funding make it difficult to maintain this provision. These respondents were giving views that children using technology is beneficial to their learning and development.

> *"I would love to have more resources to really ignite the children's interest in technology. I feel it's important for this generation to have a good knowledge of ICT as there is an ICT requirement in nearly all jobs now" (survey respondent 84).*

Some respondents reported believing the use of technology is important, however, there were barriers that prevent them assisting in this;

> *"Technology changes so fast, lack of funds can make it hard to keep up. The 'technology' used is quite basic within our EY setting" (survey respondent 77).*

> *"There needs to be more grants and training available as it's very expensive and funds are limited year on year. Our children use tablets at home so we tend to focus on mostly hands on learning in playgroup that they may be missing out on at home" (survey respondent 25).*

The general thoughts for these practitioners who view the use of technology in settings as positive is that technology can be a tool for extending learning and researching which may be

hindered if technology was limited or omitted from provision, making it a useful tool, as part of a range of tools for learning.

This mirrors work by Yelland & Gilbert (2017) who explained that technology should be used as part of a range of tools to enhance the learning experience, and the worlds of online and offline should both be used in this multimodal learning environment as they offer different, but equally important elements of the experience.

Furthermore, practitioners who replied with a positive view on the use of technology believe that as we live in a digital world, children need to have technology available to them as a medium for developing skill, competencies, and digital literacy. Similar examples are areas of literacy, language, and communication where skills develop through using books. Fine motor skills developed during emergent mark making and emergent writing through the use of paper and pens. Creativity and design skills develop using art materials, expressive skills, and confidence by using music and instruments. Mathematics skills by using counting bears, number blocks, multi links sand and water. Understanding of the world, people, and communities using roleplay resources and small world objects.

This is how Yelland & Gilbert (2017) describe technology being embedded into a multimodal classroom environment. Ideally, technology would be available as continuous provision; at hand for use without interrupting the flow of a learning experience, rather than being tucked away in a cupboard, requiring charge. Children and practitioners should make the choice together of which mode of learning and resources fits their activity best. If an iPad works best for finding out the number of legs on a centipede, an iPad will be used. However, when the child wishes to paint a picture of the centipede, they may choose to use a *paint* function on a laptop or tablet, or paper and liquid paints can be chosen. Technology is not forced upon children, nor is it limited due to preconceived ideas or anxieties about the effect technology has on development, nor is it based on a lack of confidence or training of those who are supporting the children, or a fear of devices being damaged with no funds to repair or replace.

As Price (2017) explains, technology should be readily available, charged, and accessible always. Multipurpose devices should be chosen to avoid having *too many* devices that are limiting in their purpose, as these will be used less frequently and a waste of money.

Comments included in the neutral category.

For some respondents, the views offered were neutral in nature;

> "*Part of life so part of learning and development however we do limit iPads use as feel some children overload at home*" (survey respondent 1),

> "*They are essential for day to day running of the nursery. They save us time. In terms of the children, they do not have access to technology like computers and tablets without adult supervision for a particular purpose. For example, looking up facts or teaching a skill. I think children have enough screen time at home*" (survey respondent 90).

> *"I feel that children have enough screen time at home in most cases and require a lot more time building motor skills and speech and communication because of it. I feel technology has its uses but that it is not the most important building block for development for children in early years settings*" (survey respondent 45).
>
> "*Good for practitioners, don't think children should have too much but to learn is great as some might not have at home, especially where we are is quite a deprived area in some parts" (survey respondent 62).*

These responses show some practitioners can see the benefits to children, but are conscious of the need for balance in activities;

> *"I guess I don't have a problem with it. I think as long as they're not saying on it until their eyes rolled out. And I don't agree with having the telly on, because, you know, they've been paid, and to the class to children. And I think, you know, there's just sort of an easy way out" (*interviewee 5).

As noted, before, many practitioners believe children do not need to use technology in the setting if they are using it at home. These views have been formed through a few possible routes. Some of the views may be based on practitioner's own research, or experiences of how *their own* children use technology, or their views may be based on general current or historical media coverage of studies that report children have too much screen time; often without any critical analysis of who has released the story or their motives for this.

Comments included in the negative category.

> "*Not needed, children spend too long on tablets and phones at home. We only use them in the preschool to meet the developmental matters area for technology. We were downgraded in an OFSTED inspection because we lacked ICT equipment" (*survey respondent 5*).*

This is an interesting comment. The respondent has a commonly held view that children spend too long on tablets at home, and therefore chooses to actively reduce technology use in the setting. This practice of only using technology in the preschool room to meet the requirements of the *Development Matters* area has been identified by OFSTED as an area that is lacking in their provision, and their setting was downgraded during their OFSTED because of this. At the time of collecting this data, the EYFS (2017) still had early learning goals that required children to demonstrate some skill and competency in the use of technology at the end of the EYFS period, and so settings do tend to have some provision to help children develop these skills. As recommended in chapter 7, it would be beneficial to revisit settings once the new EYFS (2021) has been in use for some time to investigate if their technology provision has changed, as the new EYFS, 2021 has eliminated technology from the early learning goals.

> "*Unnecessary, parents are all too happy to plonk a child down with an iPad in front of them. I believe children should have space to play, explore, discover with fresh air on their face, take risks, share time with others*" (survey respondent 28).

This respondent's views are in line with what Phippen (2017) described as a *digital pacifier*. Another view is that preschool should be for other activities, and technology has no place in the setting;

> *"I personally do not agree with it. They can learn all about it at home and when they get to school but whilst at nursery let them run free and learn risks and social skills"* (survey respondent 39).

Respondent 44 gave a consideration of socioeconomic grouping of families;

> "*We cater for an affluent demographic of parents, so the children have a lot of access to technology at home. Therefore, we actually want to come away from the use of screens, tablets, and computers*" (survey respondent 44).

This is another interesting comment, based on the assumption that affluent families are able to, and decide to give their children access to technology. As discussed in chapter 4, studies such as Livingstone & Zhang (2019) found that parents who are better educated with a higher socioeconomic status (SES) tend to use the internet more frequently and have devices available to do this than their parenting counterparts, and children echo the behaviour of their parents.

As discussed in chapter 4, studies such as Tang (2015) and Rice & Haythornthwaite (2006) also found links to higher SES and better opportunity for technology use, although with older children. It appears survey respondent 44 bases their decisions on offering technology use to children on the family's SES, and as there are higher numbers of high SES families using the setting, respondent 44 believes the setting does not need to offer technology opportunities. However, the quality of digital activity children have at home is difficult to determine. But if the activity at home is not meaningful, interactive, or educational, and is passive, video consumption, it may be wrong to assume children from affluent families do not also need opportunity to explore technology in an environment where practitioners are available and confident to support children in implementing technology into a multi modal learning environment.

Responses gave little regard to distinguish between activities such as passive consumption of videos, music, and TV programmes, and being able to use technology to create, research, innovate and work collaboratively. This distinction about *how* technology is used would be a useful topic for inclusion in any training devised by qualification awarding organisations, to help practitioners understand the difference between active use of technology to enhance learning, and passive consumption of media using technology.

Further, educating practitioners about their role in introducing technology into the learning environment, and blending this seamlessly into the teaching and learning would be beneficial, as it would educate practitioners on how valuable their role is to the children's experience. As Fawns (2020) explains, the setting is an ecology, formed through time. As discussed in chapter 3, the early years framework has evolved over the last 50 years, and pedagogies and teaching practices have evolved with this framework. Imposing new equipment, for example, a device such as light table or tablet without considering how this new equipment is going to fit into that ecology will result in practitioners continuing to work as they did before, therefore practitioners may not integrate the new equipment or devices effectively.

Practitioners need time to plan what they want to introduce, examine the benefits and the uses of the devices, how they will work within the environment, and how these devices will enhance the environment and learning, and later reflect on, and evaluate the effectiveness of the new addition to provision. Practitioners can only work in this way if they have awareness and understanding.

The training of practitioners on the importance of their role in supporting the use of technology for children to experience it's use for research, creation, innovation, and collaboration, as opposed to passive consumption of videos, programmes, music and games as a time filler or to keep them amused whilst practitioners tend to other duties is vital, to allow successful integration of technology into settings. There are many factors that may be influencing practitioner's decisions to offer or withhold technology within the setting, and these factors can be linked to decision making as depicted here:

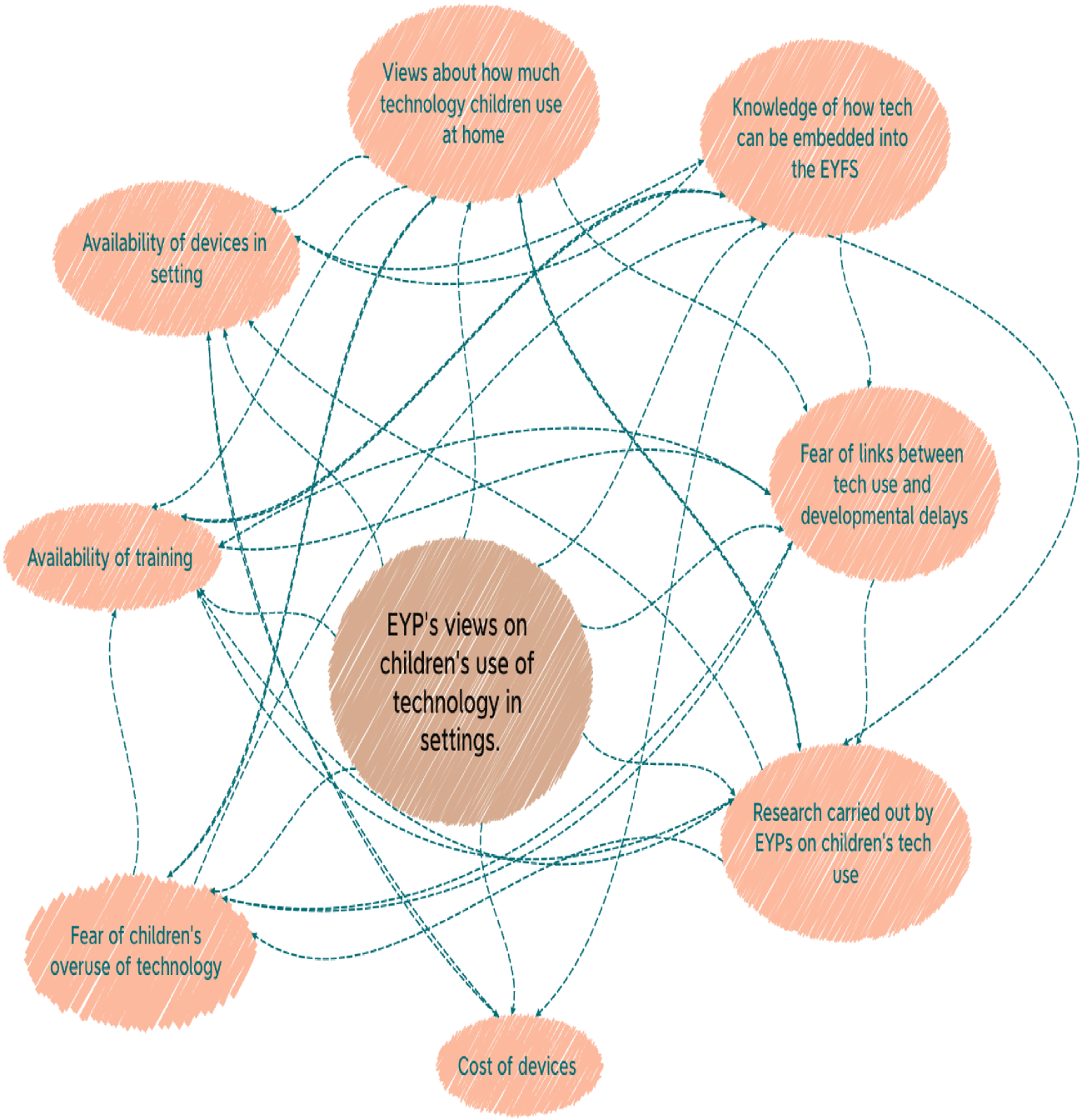


Diagram 14; using an Actor-network theory lens to illustrate factors affecting practitioners' views about technology use in settings.

Diagram 14 above illustrates factors that can affect practitioner's views about children using technology in the setting. As mentioned earlier, these factors can change levels of influence, depending on what is happening in wider society. During times of national panic, for example

when a media story breaks about children overusing technology, the fear of overuse and views of how much children use technology at home may be more influential than other factors within the network. As Fenwick & Edwards (2010) explain, entities such as the media compel action. EYPs and parents are affected by what we see and hear, and this can affect our actions. One day we may be happy to introduce technology into a child's learning. The next day (following a media story about the dangers of children's technology use) our decisions may be different.

8.3 Views on the use of technology outside of early years settings.

Respondents were also asked to give their views on children using technology at home or in public spaces, anywhere outside of the setting. Again, the question *what are your views on children using technology in the home, or in public spaces such as restaurants, shopping centres, coffee shops?* was asked, in anticipation of qualitative responses that were categorised into *positive, neutral,* and *negative* views using the same analysis of the key terms within the responses.

Positive views	Neutral views	Negative views
12	60	31

Table 15; Practitioner's views on children using technology outside of the setting.

Neutral views were categorised as such, mainly due to respondents commenting about having a balance in using technology, and other activities. Other responses included the intention of use. Respondents deemed educational use acceptable, for helping with homework, communication with family using video calls, or to extend a learning activity, but excessive use of passive video watching was not deemed acceptable, neither was technology being used to keep a child occupied whilst parents worked or completed other chores. Practitioners made distinctions between active and passive use.

> *"Absolute no in public - they need to be engaging with the world around them. Ok to use at home for positive purposes - not just watching YouTube!"* (Survey respondent 31)

> *"Often being used to pacify the child. Certainly, when out in public there is little supervision from parents" (survey respondent 48); "In small amounts but not in social places such as restaurants and not in the pushchair" (*survey respondent 42*).*

These respondents made it very clear they believe children's technology use is a negative action within public spaces, with only one developing the response to explain that children should be engaging with world around them in these spaces.

> *"I think it's such a personal decision, I think it totally comes down to the individual family, and the family structure. We've got mums that I know struggle; they find it hard, so for them to actually have an hour's time out, to be able to give their child something where they can entertain themselves, so mum can just go have a shower, or do those sorts of things, it has its place, but if a child's been sat on a device for 2 hours, cos mum's on her phone for 2 hours, is that really the time or the place?" (*Interviewee 9*).*

This respondent included thoughts on how technology is sometimes used to support a struggling parent, who may not be coping well in a public space.

> "*Definitely needs to be limited. "An app does not replace your lap" (not my quote). I think lots of parents use a phone/ tablet to occupy their child rather than entertain them. Increase of Americanised accents in EY shows this is coming from apps. I hate it. Technology has a place but a limited one in the home/ public" (*survey respondent 37*).*

This comment is very interesting and raises a concern that many practitioners have discussed in blogs and social media groups. The increase in the Americanisation of British children's accents is something many practitioners have concerns about. Of course, the most probable reason for this is the increased viewing of global shows, social media influencers and YouTubers. As outlined in chapter 3, children learn best when they are engaged in something that interests them; they are learning socially and have opportunity to engage in repetitive activities.

Popular YouTubers such as Ryan Kaji, a favourite with children under the age of 10, and his creation of characters such as Combo Panda, Peck, Alpha Lexa, Gummy Gator, and others

(Ryans World, 2021), means English children listen to his American accent, particularly over the periods of lockdown of 2020 and 2021. Many children were at home, often with parents who were trying to work from home and entertain and educate their children. These YouTube shows are available on demand, and therefore children can watch and listen multiple times. This can reinforce learning, for example, a tweak to an accent, from a British to an American accent.

Similarly, American parents have noticed their children are developing a British accent following periods spent watching a British favourite Peppa Pig (Grafton-Green, 2019). However, there are concerns of links to children fostering an American accent and the link with autism (The Autism Service, 2019).

Although cases of children who have developed an American accent without exposure to the accent is rare (Rambathla & Rao, 2013). Accents are learned through exposure, the temporary change of a child's accent to sound more like their idol is not something new, as children and young people have always tried to imitate their idols in popular culture, nor is it permanent, and should not be a concern or parents or educators (Setter, 2019, cited in The Guardian, 2020).

> *"Technology has a time and a place but not at the expense of a child's overall development and learning. We have children starting preschool who can use technology very well but can't feed themselves, don't know how to play, don't know what a crayon or pencil is for etc" (*survey respondent 55*).*

Respondent 55 based their response on observations of children's abilities when beginning their preschool journey. This practitioner is noting how over many years of practice, they have witnessed a change in the fine motor ability of children starting preschool, based on previous experiences of the ability of children of the same age.

When examining research in this area, there are many newspaper or opinion articles with comments from professionals such as GPs, occupational therapists, and physiotherapists to support the claim children are becoming less able to perform tasks such as feed themselves and use pencils and crayons (Healthline, 2021). However, it is more difficult to find academic data to support this claim. Comuk-Balci *et al* (2016) found gender, maternal age and maternal education influenced a child's fine motor development, but no inclusion of how technology may be an environmental factor.

Studies have shown a link between the use of touchscreen and a development of fine motor skills (Lin *et al*. 2017), but some studies show no correlation (Bedford *et al*. 2016). Hill (2018) suggests the overuse of technology limits the time children spend on tasks that develop other fine motor skills (other than the swiping motion and index finger pointing motion commonly used with touch screen devices). Hill (2018) also noted a reduction in children's tripod and pincer grasps used for feeding and mark making.

These reports warn the overuse of technology which takes time away from developing these skills is becoming a hindrance to children's development.

Respondents also shared views such as:

> *"Fine with limited use at home. I feel children experience technology far too young and always remember observing a young child trying to swipe a picture in a book and becoming frustrated that it wasn't moving" (*survey respondent 33*).*

This comment refers to the familiarity children have with a touch screen device, and how anything which is not touch screen, and children assume is, may cause frustration, as children expect all *tablet looking* items to function if the *screen* is swiped. Unfortunately, this can also include a book. During my time spent in settings, I have witnessed young babies and toddlers attempting to swipe a book, expecting it to function as a touch screen device.

The respondent here referred to this in the context that children are experiencing non-touchscreen devices and items less than they should, and that children need more exposure to books, so they do not forget how to use them. Baker *et al* (1997) discuss children's motivations for reading are heavily influenced by those they live with and spend time with. Therefore, the activity of reading and using a book must be modelled by significant carers to avoid children entering school without having experienced reading from and turning the pages of a book.

> *"Time and a place, sad when you see children in a pushchair with a phone or pad or families in a restaurant with heads down not talking. Too much at home can be seen in the setting i.e., delay in social play, imagination, and S&L" (*survey respondent 50*).*

Again, this respondent's comments appear to be from direct observation of children using devices whilst in pushchairs in social spaces. It appears the respondents has witnessed children in settings such as a restaurant or whilst a child has been out with parents, and they have a device whilst they are being pushed in a pram or buggy. However, the comments that follow regarding children spending too much time using technology at home affecting their skill and ability to play socially, and develop speech and language are very sweeping and require further clarification.

> *"Drives me crazy children using them in restaurants, it's a time for communication and showing how we behave in public places; ok at home some need to be taught safety on tablets more so parents" (*survey respondent 41*).*

It appears some of the respondents have witnessed young children are given devices in public spaces such as a restaurant, and assumed it was to keep the child amused so the parent did not have to engage with the child.

Examining views of technology use outside of the setting and whether respondents have children of their own.

Data on practitioner's views on children using technology in public spaces was examined against whether they had children of their own. Views were analysed for key terms that were used to categorise their responses into generally *positive, neutral negative* responses.

Positive responses were categorised if the key terms included mainly positive descriptions such as *good* or *fine* other responses which were categorised as *positive* were "*That's the new world now"* (survey respondent 42) and "*it's the new way of life"* (survey respondent 32).

Neutral responses contained some element of it being good for education, not good if the child is spending long periods on non-educational activities, or if respondents include reference to a balance between using technology and other activities.

Negative responses contained key words such as "*absolutely no"* or "*unnecessary*."

Practitioners with no children of their own	Positive response	Neutral response	Negative response
	1	8	6

Table 16; Practitioner views on technology use outside the setting, practitioners with no children.

Data suggests most respondents of this study who have no children of their own have negative or neutral views; about children using technology in public.

> "*Yeah, when I've seen, when I've been to a lot of restaurants that sometimes if a child is you know, a bit distressed I do see a lot of time parents say, "go play on my phone". Yeah. I personally don't agree with that either, you know. I would probably ask: "Do you possibly have any crayons"? You know, something like that to do some drawing? That's just me personally*" (interviewee 1, no children).

Interviewee 3 also has no children of their own and gives an opinion of children using technology outside of the setting.

> "*I think this is this is where I was feeling like I was falling into a stereotype. I suppose my experience, you know, from the sort of area where we are, is that actually, technology is used to replace a lot of parenting, and traditional sort of parts of parenting. So, we see a lot of Bedtime Stories replaced by putting on a DVD or just letting their child watch TV. So, you know, I have no problem with sometimes listening and watching a retelling of a story on an iPod. I think that's, you know, that's a lovely addition to reading, you know, stories, particularly a familiar story, it's really nice to do that in a different way. I think where it replaces parental interaction, you know, I think it's, it's really sad. And, you know, I think we've seen a lot of the fallout from that. So, you know, the reduction in a child's language when parents instead of talking to them, that just, you know, say at the end of the day, walking out of nursery sort of chatting about their day, they're just given an iPad or a tablet, phones tucked into prams to you know, to keep the child quiet*" (interviewee 3, no children).

Interviewee 4 has children of their own who are grown up.

> "*I feel that some technology is sometimes used as a babysitter! We can usually tell those children that are exposed to large amounts of screen time. They would do the same in my setting if they were given the chance! It is clear to us that some of these children are lacking in the wider social skills as they spend large parts of their days interacting with a screen and not with peers and adults*" (interviewee 4).

Interestingly, those with older children, aged over the age of 18 years old have similar views to those who have no children:

Practitioners with older children of their own (18+)	Positive response	Neutral response	Negative response
	1	15	8

Table 17; Practitioner views on children's technology use outside the setting, practitioners with children aged 18+.

Most practitioners with children over the age of 18 gave neutral or negative responses to young children using technology in public spaces. Conversely, practitioners who are parents or grandparents of younger children, under the age of 18 tended to have views that were more positive of the use of technology in shared spaces than those without children, or whose children are older (and therefore did not have the option when their children were younger of having technology to use in social and open spaces such as restaurants)

Practitioners with younger children (under 18)	Positive response	Neutral response	Negative response
	8	14	1

Table 18; Practitioner's views on children's technology use outside the setting, practitioners with children and grandchildren under the age of 18.

> "*I think probably everything in moderation. And but I think before I had a child, I'd be like, no, that's appalling. Why would you do that? And then, you know, since I've had a*

> *child, I'm like, Okay, if they're screaming, and nothing else works out, and everyone's looking at me, they just put a game on or something. It's fine. Yeah. And but you know, I think everything in moderation, and as long as they're not using them as a babysitter, then it's the same as anything in life. They've got to learn to moderate themselves as well*". (Interviewee 7; practitioner and mother to a 6-year-old).

Drawing on personal experiences was also included in interviewee 5's response.

> "*I personally think…. our granddaughters three. And, you know, if we're out and about waiting in a restaurant, waiting for food, it just occupies them to distract them from the waiting so that way, I think it's a good thing. But in a bad way. I think if a parent just puts their child in front of the TV or the computer or the tablet for the whole day, I think that that's not good because it's taken away their social skills*" (interviewee 5; practitioner and grandparent to a three-year-old).

One respondent with children aged 14 and 19 responded negatively to children using technology in public,

> "*Children have far too much screen time*" yet admitted "*I am guilty of this myself*"! (Survey respondent 41).

The data shows respondents in this study who have younger children are more likely to have opinions which view children's use of technology in public and home spaces in a positive light, and those practitioners without children, or who have children who are now adults, have opinions that view this less favourably. Of course, this cannot be a generalisation of all practitioners, but these trends can be seen within this dataset.

Examining views of technology use outside of the setting and practitioner age.

Data on practitioner's views on children using technology in public spaces was examined against practitioner age. Again, the responses were categorised into *positive, neutral,* and

negative responses, based on key terms within the response. In starting to categorise into age categories.

Age bracket	Positive response	Neutral response	Negative response	Total in age bracket
20-29		15 (100%)		15
30-39	1 (4%)	18 (75%)	5 (21%)	24
40-49	3 (9%)	22 (67%)	8 (24%)	33
50-59	1 (6%)	10 (62%)	5 (31%)	16
60+			2 (100%)	2

Table 19; Practitioner's views on children's technology use outside the setting with practitioner age.

- 100% of the respondents who were aged over 60 have negative opinions about children using technology in public.
- 100% of respondents aged 20-29 have neutral views on the topic.
- The larger majority of the 3 age bands of 30-39, 40-49, 50-59 have neutral views, with higher negative views than positive.

Generally, practitioners in the study had negative or neutral views about children using technology whilst in public spaces, with negative responses increasing, as respondents got older. Of course, this cannot be a generalisation of all practitioners, but my dataset shows these trends.

One of the factors that may influence practitioners' perspectives of children using technology in shared spaces is the memories and comparisons to their own childhood, or to the childhood of their older children. Data revealed the opinions of practitioners with young children and grandchildren were markedly different to the opinions of practitioners with older children, or no children (as those with younger children see how children experience childhood today, with our technology-laden world).

However, as examined in chapter 2, the constructs of childhood throughout history have changed considerably, so children are experiencing their childhoods very differently, to how adults in their twenties, thirties, forties, fifties, and sixties would have experienced their own childhood. Being a child in 2022 is very different to being a child in previous decades, and therefore judging children and parents, as a comparison to one's own childhood could be

problematic. This may explain why practitioners with young children or grandchildren are more accepting of children using technology in public spaces.

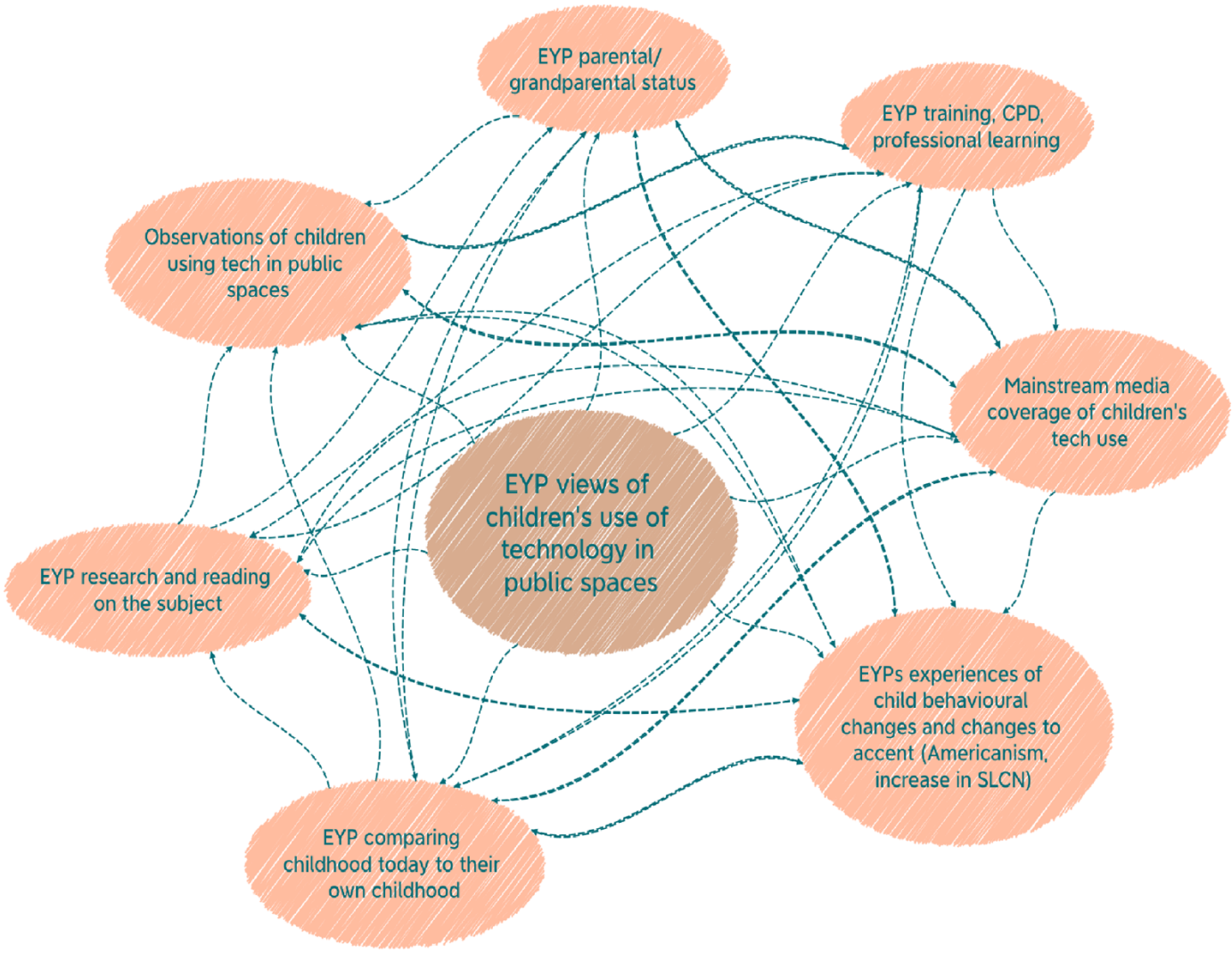


Diagram 15; using an Actor-network theory lens to illustrate factors influencing practitioner views on children's use of technology in public spaces.

Diagram 15 above illustrates the network of factors that affect practitioner's views of children using technology is public spaces. Again, these factors are fluid and can change their influence. For example, if a practitioner experiences and observes children using technology in public spaces, whether they observe a stranger's child using technology in a coffee shop, or whether it is their own grandchild using a tablet whilst waiting for a bus, this may have more

influence on their views than reading about technology use in a journal. However, if they experience an influx of children into their setting with speech and language issues, or changes to their dialect or accent, they may attribute this to overuse of technology at home. These factors can change from one day to the next, and this will influence the practitioner's view on the benefits and problems associated with a child using technology whilst outside of the setting.

8.4 Conclusion.

In this chapter I examined practitioners' views on children's use of technology, both within the early years setting, and in other settings, such as the home, and in public spaces. Practitioner's ages and whether they had children or grandchildren of their own was considered alongside their views.

In examining practitioners' views on children's use of technology within the early years setting, most practitioners viewed this in a positive or neutral way. Practitioners who commented that the use of technology was a positive addition to learning referred to children needing to develop competency to prepare them for our digitally rich world, and that technology can enhance learning experiences. For those who felt technology was a negative aspect of a setting, the comments included elements of children using technology too much at home, or that it was stunting areas of development, such as speech and language or fine motor skills. Although, as a review of literature has shown, these claims have little academic support.

The data showed patterns where practitioners in this study viewed the use of technology by children in public spaces in a more negative light as the practitioners got older, but the practitioner being a parent or grandparent affected their views on the use of technology in a more positive light. Practitioners made distinctions between children's use at home being acceptable, but in public spaces, practitioners deemed this less appropriate.

The data highlights that practitioners have strong views on whether children should use technology in public spaces, yet few of them discussed *using technology in terms of consumption and education or creation.* Children can use technology in public spaces for educational experiences. The game *Pokémon Go* involves searching for virtual Pokémon in public spaces, and along the way, learning about areas of interest or history. Other uses in public spaces include using geocaching to find articles or 'treasures" through GPS location systems. Further, even in public spaces, there are many activities using technology that are educational and not necessarily passive. There are many age-appropriate applications

designed to help children with emergent reading, maths skills and creative design that can be used whilst sitting quietly with the family.

Image 1; Rijksmuseum (2015).

The photo above was taken in Rijksmuseum in 2015. The image went viral online with people expressing outrage that children are so disconnected to the real world. They are unable to appreciate the wonderful exhibits in front of their eyes (Morris, 2016). It emerged later, that the children had used their handheld devices to activate a QR code, which gave them information about the exhibits they were viewing. The heritage, age of the piece and artist backgrounds were provided by the museum through QR codes that were scanned by the children to find out more about the pieces. One example of how a snapshot of a situation can lead to assumptions that do not give the whole picture.

Reflecting on this, as a parent and an early years practitioner, I can admit it is hard not to have personal opinions about children using technology, based on one's own children's and grandchildren's experiences of childhood. However, these personal experiences and views

should not cloud the judgement of providing well-rounded educational experiences for children in the early years environment.

The data presented in this chapter shows how respondents' views of how children use technology within the setting and outside of the setting may affect their decision to offer technology within classroom provision, or to plan the use of technology into an activity, and therefore their views are important in the overall view of technology in the early years framework.

As mentioned in previous findings chapters, the views and opinions of practitioners is vital. Practitioners plan and implement early years provision, so ensuring practitioners are fully educated and knowledgeable on the benefits and risks of technology use by young children, based on academic data, and not just tabloid stories or magazine articles is extremely important, to allow practitioners to make informed choices.

The only way we can ensure practitioners are making informed choices about technology provision is to ensure they receive training and education on the topic, to fully understand the various applications of technology. We need to ensure children have a balance between technology for consumption, and technology for creative and collaborative purposes and practitioners can achieve this through good training in preparation for practice.

In this chapter I met research aim 1; to explore practitioners' perspectives on the use of technology by children in early years settings, and outside of the setting. In the next chapter I examine the implications for practice and recommendations I have drawn from the findings of this research.

Chapter 9 Final conclusions, limitations, implications for practice and recommendations.

9.1 Introduction.

This thesis was born out of my interest and professional experiences of how early years practitioners facilitate technology use for children. The focus of the research was practitioners' perspectives on technology use, and what influences these perspectives. Reflecting on my positionality within the early years sector and caring for children, my positionality map (Jacobson & Mustafa, 2019) situated me as a former EYP, a tutor of trainee EYPs, and a mother of 3 sons who have grown up in a technology rich environment.

To explore how current EYPs construct their own realities of technology use, I acknowledged and embraced my positionality within the sector to seek relevant literature on the subject area, find suitable participants, enhance the data collection process, and analyse the data using reflexivity to ensure my personal standpoint did not affect *how* the data was analysed. As Foulkes (2022) explains, in qualitative research, the researcher's positionality does not need to be an obstacle, it can enrich research, providing the researcher acknowledges their positionality and is reflexive during the process.

Employing elements of a feminist methodology to my data collection allowed me to build a professional relationship with my participants so they felt an affinity with me as I took an emic perspective (Holloway & Brown, 2012); acknowledging my former EYP status, and my current tutor position to invite participants to share their views on a topic both the researcher and respondent were familiar with.

I employed a qualitative methodological perspective, allowing me to explore how EYPs build their own reality of technology use. Findings suggest EYPs form their reality through observations of children using technology, using technology themselves in their personal and leisure time, building confidence in using technology, and conversations with parents and colleagues about children's use of technology. EYPs also construct their reality of technology use through media interactions, reading and research, and fulfilling the practice requirements of the EYFS and OFSTED.

EYPs have agency into the construction of this reality. They have a choice to undertake post qualifying professional learning or CPD, but this is often hindered through lack of opportunity or funding.

Due to the unforeseen developments of the COVID-19 pandemic, I was also able to gather data on how the pandemic affected practice around technology use in settings for practitioners and children.

In the literature review I examined how the early years education has been affected by the socio-political landscape over the last twenty years, how EYFS came into existence, and how technology has been embedded into this framework. I also highlighted previous studies with practitioners; their experiences, their levels of confidence and their personal views on how technology should be used by children.

I argued that children experience varying educational experiences. Technology is increasingly present in a child's life, yet the educational system in England appears to be failing young people who are finding it increasingly difficult to fulfil newer job roles of this digital society. In this chapter I emphasised how this period of a person's life is heavily dependent on the cultural, political, familial networks around the child experiencing the childhood.

I analysed the EYFS, particularly, how technology has been included in the framework from 2008, until the revised version, implemented from September 2021, when technology was completely removed. This illustrates the erosion of the concept of technology from the framework and poses questions about how practitioners will be guided to include technology in provision moving forward. The pilot trials of the new framework, subsequent feedback and consultations revealed concerns. The response from the DfE was that although technology was no longer mentioned in the framework, it was not expected to be removed from setting's curriculum, as it still needs to be included in learning opportunities.

This raised questions about how settings would know if they were offering enough provision, or if the provision was implemented at the correct level. It is expected that practitioner training would prepare them sufficiently to know this. The emphasis for this chapter was to demonstrate how practitioners used this framework as a guide and with technology missing, questions could be asked about how EYPs will gain the knowledge to use technology and support children's use of technology.

I examined literature on practitioner's experiences of building their curriculum from the EYFS framework, including the use of technology in the early years classroom, along with literature that underpins how they made informed decisions about children's technology use. I considered factors including practitioner confidence in using technology, main qualification

training and subsequent CPD, personal views about children's technology use, concerns over risks of technology use, how the media can influence gatekeepers all affect decision-making. I also considered barriers to offering technology use such as lack of funding or resources which also contribute to decision making. Previous researchers have categorised these barriers into extrinsic and intrinsic factors.

Having reviewed this literature, the focus of my research was decided, and the four aims of this thesis were finalised:

- Explore practitioners' perspectives of the use of technology by children aged 0-5.
- Examine practitioners' experiences of training and qualifications in early years and how these prepare practitioners to use technology.
- Investigate practitioners' experiences of using technology during the COVID-19 pandemic.
- Examine practitioners' views and opinions of the changes to the EYFS framework in 2021, and how these views may affect the use of technology in early years settings.

Data was collected over the period of COVID-19 national lockdown, so adaptions had to be made to data collection methods. Despite these challenges, data was collected from 103 participants and although a reactive and reflexive stance had to be taken in relation to method, the qualitative methodology remained. Although I received many responses to my survey, and this data could be used to analyse responses in quantitative way, I wanted to maintain my aim of giving EYPs a voice, and so I maintained my qualitative approach and utilised the data to achieve this. Once data was collected, analysis was completed around three "P" factors that affect practitioner's perspectives of technology use; political factors, professional factors and personal factors, and conclusions drawn upon the findings.

9.2 ANT as a tool to view the changing landscape of technology use.

An ANT lens was cast over the data to examine how each of the "P" factors (policy and political, professional, and personal factors) were intertwined and connected to a range of factors or 'actants' within a network. Placing the EYP in the centre, and their views and opinions of technology use the topic of investigation, each of the ANT diagrams illustrates the various actants (Latour, 2055) surrounding the EYP, shaping their views, opinions, and experiences.

For example, diagram 15 shows the network surrounding the EYP as they posit children's use of technology in public spaces. In this network, actants include their observations of children being offered technology in public spaces to keep the child quiet whilst adults chat. Another actant was the parental or grand parental status of the EYP. Further actants include the level of research the EYP has undertaken on children's use of technology, or any professional learning the EYP has received.

Each of these actants will have influenced the EYP's views on children's use of technology in public spaces, and these actants constantly shift and change; becoming unstable, possibly breaking the network as new actants form links (Latour, 2005). One actant that exudes force on a situation one day may not be as forceful the next.

This was apparent during the lockdowns of COVID-19, where EYPs views on children's technology use in settings was affected by actants such as the EYFS and OFSTED inspections, yet when government guidance changed on cleaning resources and not sharing resources between bubbles of children, the EYFS requirements (which became less important to adhere to) and OFSTED inspections (which ceased during COVID-19 lockdowns) became less forceful in the actant network, and feelings of anxiety and compliance out of fear became more forceful. During lockdowns, the actants of the EYFS requirements, and OFSTED expectations of technology provision in settings became weaker parts of that network, and fear and anxiety over keeping children and staff safe from contracting COVID-19 became strong actants in the network.

As discussed in chapter four, ANT is often criticised for not offering theory. However, in the turbulent time of data collection during my PhD journey, ANT allowed me to view the changing influencers on EYPs views and opinions of using technology. As Law (2007) states, the objective of ANT is to understand how these things come together and stay together, even temporarily. ANT allowed me to see how factors, such as COVID-19 lockdown practice guidance can come and go, but some stable (Latour, 2005) factors (such as the level of EYP professional learning and access to current learning materials to help build informed decisions) are stable throughout all the networks. This helped me to make recommendations for practice to support the early years sector. These are outlined in sections 9.4- 9.6.

9.3 Limitations of this study.

As with all research, there have been limitations. The global pandemic dictated these limitations, as I was in the first period of fieldwork at the time of the first national lockdown.

I had not planned to use the range of data collection methods that I used in this thesis. The proposal for the data collection methods included in person focus groups with teams from settings in Suffolk, collecting data through professional debates that were audio recorded. I believed this to be the best method to gather data in an informal but professional way, and to encourage all staff to participate and share their views and experiences. The global pandemic and resulting lockdowns changed this dramatically.

After the Government ruling that people should not mix with others outside of their own household to reduce transmission of COVID19, I had to adjust the data collection methods. Initially I revised the process and recruited participants through sector social media groups. This worked for a short time, and I managed to gather data from 12 participants through telephone interviews.

However, as the pandemic continued, and early years staff began to feel the effects of working during a global pandemic, caring for other keyworkers' children, managing staff shortages due to COVID-19 infection, becoming ill themselves, and the emotional turmoil of placing themselves in danger of infecting their own families just by going to work while most families were in lockdown, the burden of the pandemic began to take its toll on practitioners. They became fatigued and had no time to spare for phone calls with myself. I had many interviews cancelled.

At this point, I needed to adjust my data collection method again, to allow practitioners to participate at times that suited them. At this point, the data collection methods changed to an online survey, but still collecting qualitative data.

One could argue that multiple changes to data collection is a flaw in the study. However, the unprecedented situation we were all living through meant that for me to continue the process of collecting data I had to adapt my methods or risk the study stalling and failing. I felt my project was too important to allow this to happen, and I do not feel the data I gathered suffered because of these adaptions. On the contrary, I was able to explore how the pandemic was affecting practitioners, and how they had changed their methods of communication, and work with the children during this time, and I believe I have been able to gather some useful data about how the pandemic affected the early years sector.

9.4 Conclusions, implications, and recommendations based on the findings of Policy and political factors affecting technology use.

Findings highlighted how influential the COVID-19 pandemic and the changes to the EYFS framework have been on how settings facilitate technology use for children, and how

practitioners use technology. Government policy and guidance for settings and practitioners during the COVID-19 pandemic led to changes to provision. Some practitioners removed technology for the children's activities for fear of harbouring and spreading the virus on devices between bubbles of children, as they feared they would not be able to keep the devices sanitised. Practitioners also believed that if children were at home during periods of lockdown, they would probably be using devices much more at home, so they thought it would be good to minimise the use of technology in the setting.

Conversely, some practitioners reported using technology with children more, to reduce anxiety for children who were worried about returning to the setting following a period at home in lockdown. As discussed in the earlier chapters of the literature review, research on how children used technology in preschool settings during COVID-19 is minimal, so there is no prior literature with which to compare these results. This does mean this data is some of the first to emerge on this topic, making it valuable for those who wish to evaluate the impact of COVID-19 on early years practice.

Practitioners reported using technology more as part of their role, learning to use applications such as Teams, Zoom and other aspects of nursery software packages. Some reported installing new software because of the pandemic and lockdown changing their day-to-day work, whereas others reported using existing software in different ways, or increasing its use to fuller capabilities. Some practitioners shared anecdotes of how they recorded activities or story reading and shared the videos on Tapestry or similar software packages so the families had resources they could share at home, to ensure learning could still take place during periods of lockdown, and how the practitioners enjoyed this and planned to continue these tasks after normal services resumed.

These reports highlight how adaptions to practice made during COVID-19 may have permanent effects on early years practice. The important aspect of these findings is that practitioners have had to learn new skills to adapt their practice, and some have reported this was a steep learning curve.

These findings are significant, as it highlights those practitioners have had to learn new skills, just to be able to continue the day-to-day duties of their job. This can help improve preparation for those training to become practitioners. These functional skills would improve employability for all trainee practitioners, and supports the view that changes need to be made to qualifications to ensure practitioners are being fully prepared for all aspects of the job.

The other political factor that has changed practice on the use of technology is revised EYFS statutory guidance in 2021. The removal of technology from the *understanding the world* early learning goal was examined to highlight practitioners' views on whether this would change

their practice in offering technology for children to use in settings. Data showed a range of responses. For the respondents who felt the removal of technology was a step backwards, responses ranged from thoughts that technology should be used by children to prepare them for the digitally rich world we live in, and that practitioners should be teaching children to use technology safely. Many responded with views that as technology is something that we will only become more dependent on, settings should not prevent children from learning how to use technology for a range of purposes.

Two thirds of respondents felt happy that technology had been removed, reporting views that technology use was not necessary in early years, and children use technology far too much at home. Others felt the removal was a positive step to making technology use a part of provision which did not need to be assessed and should be part of the ecology of the classroom, as pens, paper and paints were. These responses matched the vision of the Department for Education who stated technology should still be provided for use in settings but should be embedded across all areas of the curriculum.

This supports those who advocate for a multimodal classroom (Arnott & Yelland, 2020), with technology available for children when it fitted the activity. This however requires practitioners to be confident and competent in supporting children's technology use, and scaffolding support where needed. Practitioners need to understand how technology use should be encouraged for creative and collaborative purposes (Withersey, 2021). Again, for this to work, practitioners need training.

The political factors identified as affecting how technology is used in early years settings, both by practitioners as part of their role, and by children, supported by practitioners are the COVID19 pandemic, and the revised 2021 EYFS. There have been marked changes to technology use, as described through participants of this study. I recommend that further work be carried out in the following areas:

- Conduct further research once the 2021 EYFS framework has been in use for an extended period for example, 24 months, to examine whether practitioners feel technology use has changed, and how it has changed. This would help to explore if settings are choosing to reduce technology, as it is now not included in the EYFS, or if technology is being embedded across all areas of the curriculum.
- Research be conducted in consultation with year one teachers, to ascertain their views on whether they believe the changes to the EYFS framework have affected children's ability to use technology when they enter the stage of schooling where the national

curriculum requires the use of ICT and computing in key stage one. This would help to ascertain if the removal of technology from the EYFS framework is affecting a child's ability to transition into key stage 1.

Researchers could collect data for this through focus groups, observations, or national surveys.

9.5 Conclusions, implications, and recommendations based on the findings presented on professional factors affecting technology use.

The analysis of practitioners' experiences of how they use technology, both within their administrative duties, and as teaching and learning tools highlights just how heavily technology is relied upon in most early years settings. Data highlighted practitioners and managers reported using technology daily in the administrative duties of their role, and this had increased during the COVID-19 pandemic. It also highlighted that as practitioners generally feel confident in using technology, their confidence appears to be generated through self-taught and peer taught activities, especially during the pandemic, when many practitioners had to muddle through and teach themselves, due to being at home in national lockdown.

Although it is positive to hear practitioners are finding their own ways to learn and develop these essential skills, it does highlight potential problems. There is potential for developing skills that are not standardised, with a lottery of learning. If a setting has a practitioner who is confident and competent in using the nursery software and is knowledgeable on the latest children's apps and downloads, and some respondents reported being lucky enough to have that one talented practitioner in their team, practitioners may get lucky and learn from their work colleague. However, as the respondents have explained, not all settings are lucky enough to have that person who can teach the rest of the team.

Through the testimonies of senior practitioners and setting managers, data suggests newly qualified practitioners are often unable to navigate nursery software, or support children in a variety of learning activities. They struggle to integrate technology into the pedagogy of the setting, to ensure technology is part of a multimodal learning approach, encompassing technology as a resource into the fabric of play, learning, and exploration, the same way that paint, pens, and junk modelling are used. If practitioners are not confident and competent in technology use, they may develop negative dispositions, and avoid its use.

The evidence suggests a need for the review of training for student practitioners. Data suggests some practitioners are unable to master Tapestry and other nursery software and show a lack of knowledge and understanding of basic online safety issues and digital citizenship practices that may compromise the integrity of the setting, or the practitioner, or place a child or family at risk. Managers felt EYP qualifications need to include more to support those in training to understand these areas. The review of qualifications and practitioners CPD and professional learning highlights a lack of standardised, regulated training for preparing practitioners for the use of technology. It is therefore the responsibility of the awarding organisations to introduce more content in their qualifications.

> *"We continue to view technologies as unique and distinct resources, rather than as part of a suite of resources available to learners. What is required is the recognition that technologies are one modality with which children can explore a construct. New technologies not only influence existing modalities but are one also a unique modality with which children can explore any construct. We therefore advocate a focus in the curriculum on multimodal learning that incorporates new technologies"* (Arnott & Yelland, 2020, p. 135).

These findings not only highlight a gap in the competencies of newly qualified practitioners, but those who have been qualified for many years. It is unrealistic to expect every practitioner with a current licence to practice to do another full qualification to update their technology competency, although there is an argument that some form of CPD or professional learning would benefit all longstanding qualified practitioners. This may be costly in both time and money. However, some training, with cascading of formal training by a senior staff member would benefit all practitioners. This model of professional learning mirrors the teacher communities (TC) (Vangrieken *et al*, 2017) shared by other lead practitioners within the early years sector.

Based on the findings from my study, I am making three recommendations to support the early years sector moving forward:

- Further research is conducted, consulting with managers and senior practitioners from the early years workforce, to complete a skills gap analysis to identify areas where newly qualified practitioners' skills, knowledge, and competency in using technology could be improved. This data could be collected nationally, through an online survey,

to inform awarding organisations about how they may include more content into main qualifications to support trainee practitioners in the use of technology. Further, working with organisations such as online safety groups, nursery software companies, tech toy companies and local authorities to ensure local need and local safety concerns are addressed, a package of training, designed for digital activity lead co-ordinators (DALCOs) to ensure all aspects of technology are covered within the training, within both main qualifications and CPD.

- Creation of a specialist role; the digital activity lead co-ordinator (DALCO). A senior member of staff from each early years setting takes lead responsibility to co-ordinate and oversee the use of technology within their setting, and lead, or mentor the team with CPD and cascading of knowledge. This new role is like the role of the early years SENCO (special educational needs co-ordinator) who oversees the implementation of SEND provision. Another, more recent role being introduced into settings is that of PANCO (physical activity and nutrition co-ordinator). In a similar sense, this role is undertaken by a senior practitioner, who oversees the setting's provision of physical activity and ensures the setting is providing balanced nutrition.

  I recommend a similar role be introduced to lead in all matters of technology. A role undertaken by a senior practitioner with a particular interest matters of technology. A lead practitioner who can lead and mentor their team in training and CPD, who could cascade knowledge to their team, undertake regular training to update their knowledge and skills in areas such as online safety, changes to legislation, knowledge of new and popular children's apps, games, and activities, take charge of the online software and support team members in becoming competent with this. Further they could manage the setting's online presence, working with parents to support children's technology use at home, and any other responsibilities that are identified within the setting. In appointing this senior practitioner to this role, settings would be able to ensure their technology use is monitored, and staff have a lead or champion for this role. Further, the local authority and OFSTED would have a point of contact in each setting who could lead and liaise on all matters relating to technology.
- The creation of a digital activity lead co-ordinator (DALCO) network. To ensure DALCOs have a network of support, I recommend a community of practice or teacher community (TC) be created, like the SENCO and PANCO networks, with groups on social media platforms, and links on local authority early years sites, allowing DALCOs to connect and liaise together to share best practice, ask questions, and support one another. Contacts and links could be shared through the training process, allowing them to work together, regardless of geographical location. This community of practice

will provide a space where DALCOs can engage in post training debates and learning to ensure their knowledge and practice remains current and relevant, as described by Vangrieken *et al* (2017) as the teacher communities' effective characteristics.

Having a network would also allow new DALCOs to find training and allow companies who may be advertising their technology related resources, equipment, and software for early years settings to have a group of practitioners in this specialist role to share with. As discussed in chapter 3, I know SENCOs and PANCOs find these network groups essential for keeping up to date with changes to legislation, policy, and practice, for learning about new and upcoming events and training, for collaborating, sharing best practice, asking questions to others who may have experienced a scenario they need advice on. I believe SENCOs and PANCOs feel this is the most effective way to learn. The support is authentic, and more valuable than receiving advice from an 'expert' who has not experienced being in the role in an early years setting. This type of continuous learning alleviates the complaints described by teachers who found CPD that was not revisited, or allowed collaboration had less impact on their practice, and therefore the outcomes for their students (Cordingley *et al,* 2015).

Validation of recommendations.

To validate my recommendations, I shared an overview of my findings with six early years managers to ask whether they felt the recommendations would be beneficial from an industry and employer perspective. I asked if they believed this was realistic and achievable, and if they foresaw any problems or barriers to the recommendations (see appendix 11). The responses were overwhelmingly positive, with all six managers reporting these recommendations would be beneficial for their settings and would make the job of manager easier as it would spread some of their duties. Respondents also felt it would give another responsibility to a senior practitioner who would feel valued in their role. I believe this validates my recommendations from an industry and employer perspective.

I also contacted a senior subject specialist and qualification content writer from the awarding organisation NCFE CACHE who oversees and creates content for the childcare qualifications. I forwarded a report of my findings (see appendix 12). Her response was very positive. From the perspective of this awarding organisation, it was believed that it would be greatly beneficial to explore how awarding organisations can support this aspect of practice, and it was agreed I would co-write, with the content writer for NCFE CACHE a level 4 (2 unit) qualification that

will be available for all practitioners, whether they are newly qualified at level 3, or have been qualified for many years, who wish to take on the DALCO role.

The qualification is currently on its first version and the NCFE CACHE vocational qualification board are reviewing this for release. The current version is included in appendix 13. The senior subject specialist and I have subsequently released an audio recording on the NCFE CACHE website entitled “In conversation with Emma Harvey; A debate on technology use in early years; how can this be managed?” that outlines the findings of this thesis and proposes the introduction of the DALCo and the community of practice, so those who work with this awarding organisation are introduced to the concept and upcoming qualification, which will be available for all training providers to offer.

The desire of the senior content writer to create this qualification validates my recommendations from the perspective of awarding organisation involvement in moving forward with my recommendations.

9.6 Conclusions, implications and recommendations based on the findings presented on personal factors that affect the views on children’s use of technology.

The analysis of practitioners’ views on children’s use of technology in the setting environment showed interesting links to practitioner age (with views of young children using technology becoming more negative as the respondents got older). Practitioners with young children or grandchildren took a more accepting view on young children using technology in public areas, and those with no children or children who were grown up had more negative views on children using technology in these spaces.

One prominent theme in practitioner responses was the belief technology is used *too much* in spaces outside of education, such as at home, or in public spaces, and this can often influence whether practitioners choose to offer technology in the setting.

Some practitioners, but not many, included discussion about whether technology was used to consume or create, and this is very important. If practitioners are bulking all technology use into one purpose, without considering whether children are using technology to consume or create the decision to offer or withhold access to technology may be based on judgements that are narrowly considered.

If a practitioner is basing their decision to offer or withhold access to technology because they believe children spend too much time at home on devices, they may be preventing children from the only opportunity they have to use technology in creative, collaborative ways. Children may not use technology in these ways at home, if they are simply using devices to consume videos, programmes, music, and games, it is the responsibility of practitioners to support children in settings to learn how to use technology to create, as discussed in chapter 7. Further, practitioners who withhold access to technology based on assumptions that children are using too much technology at home are denying children the richness of multimodal learning.

> *"Reducing L2 learning to the flat literacies of paper-based resources in the classroom raises questions of authenticity in L2 learning. If teachers are to meaningfully engage L2 learners in communication as it exists in the social world, these brave new dimensions of literacy must be woven into classroom learning" (Lotherington & Jenson, 2011, p. 228).*

The world is full of technology. If learning is to be authentic and relative, it must include technology.

Based on the findings from this section of EYPs personal views on technology use, I recommend practitioners have some learning materials available to assist their understanding of the differences between how children use technology to consume or create. To teach practitioners about their role and responsibility in supporting children's use of technology in creative, collaborative and research activities. To teach them how to embed technology into existing pedagogies and incorporate technology into the existing ecology of the classroom. I recommend that practitioner main qualifications are updated to include these topics, and CPD or professional learning training is created, that covers these topics for existing qualified practitioners, as discussed in the recommendations from the findings in chapter 8.

I believe the creation of the DALCo role, and the training being developed with NCFE CACHE will help practitioners to make informed choices about technology use in settings, based on knowledge gained during this training. This will help them understand their role in offering a balance to children's technology use, which will help them see that even if a child appears to be using technology lots at home, this does not mean they are being taught how to use technology to create, research, collaborate with others, and use technology for a range of purposes. There is a need for practitioners to incorporate some technology use into the curriculum, and this can be embedded across all seven areas of learning.

9.7 Final conclusion.

The final conclusion must give closure to the thesis (Evans *et al*. 2014). Throughout this thesis, the practitioner experiences, and views on the use of technology in early years setting environments and other locations were examined. The range of views and experiences have been categorised into 3 'P' factors; political, professional, and personal factors, which illustrate the range of factors that can influence whether practitioners choose to offer technology to children in settings, how this is placed into provision, and whether practitioners embrace the use of technology as part of their role in caring for children. Respondents reported external factors, of a political and professional nature, influence and affect how they use technology in their role, and with children. Personal factors were shown to influence decision-making. Further, many interwoven networks have been illustrated as having contributing factors to decision making, and the ANT lens highlighted just how many links there in these networks, with factors changing in level of influence across time.

Practitioners can do little to predict or influence top-down political change, such as how a global pandemic will affect setting practice guidance. The have little control over how government will instruct them to maintain normal service during times of immense change or unease in society, or how the revisions to their overarching guiding legislation such as the EYFS will affect practice. What they can control is how they react to changes like these, and where they draw their knowledge, confidence, and resilience. The thread that weaves all decision making together is being able to make informed decisions, based on *training* and *educated knowledge.* Practitioners who are faced with changes to the curriculum framework can make decisions that will be best for their children if they have sound underpinning training on the subject they are making decisions about.

Practitioners faced with Government guidance on how to maintain opening of the setting during times of social unrest such as the COVID-19 pandemic, can make sound judgements, based on a strong foundation of *knowledge* and *training*. Practitioners with strong underpinning training will not be panicked by media frenzy or a spasmodic tabloid article about the dangers of technology for children. They will be able to use their judgement and evaluate the situation critically.

Practitioners' personal views, and any judgement they feel from others of their decisions to offer technology to the children they care for, can be balanced against an informed understanding of the different modes of technology use. Practitioners can consider consumption and creation, and the practitioners' responsibility to support children to

experience both modes of technology use, to prepare them for the transition into school, and for their future educational journey into adulthood. They can celebrate building foundations for children's confidence in using technology for those all-important employability skills that are reported as lacking in current graduates and those entering the workforce.

Practitioners who are faced with extrinsic barriers such as lack of funds for purchasing or maintaining technology will have a strong foundation from which to put their justifications to senior management, based on their underpinning knowledge of the importance of the subject. Practitioners can build a curriculum that offers multimodal learning opportunities for their children with a sound underpinning knowledge of how to embed this into the ecology of their classroom.

Practitioners will be confident and competent in using technology as part of their role, saving time with report writing, recording assessments and communications with parents and outside professionals. They will be confident in data security and maintaining professional reputations online. This will enhance the employability of new and existing practitioners as they fulfil the administrative duties associated with the EYP role. Newly qualified practitioners will not only have had training that gives them a strong foundation to step into the role of EYP, fulfilling those duties which require technology use, but also have the security of knowledge that the setting they are working at will have a DALCo (supported by a community of practice). The DALCo can support and build their knowledge, understanding and competencies in technology use throughout their career.

The thread that ties all the contributing factors together and can influence practitioners' responses to these contributing factors is their *knowledge*, *underpinning training* and *continually updating and improving practice*; something that is already dearly valued in the early years sector, with regular CPD to update skills in safeguarding and paediatric first aid mandated in the EYFS. We just need to include technology use into the scope of professional development for practitioners. I believe the recommendations I have made in this thesis; the creation of a specialist DALCo role, the creation of training for those in this specialist role, who can cascade their knowledge to their team, and further recognition of the need for training in technology use, will create a pathway for this to begin.

Appendices.

1. Findings from review of early years qualifications in England
2. University of Suffolk ethics committee application documents (wave 1 focus groups)
3. University of Suffolk ethics committee application documents (wave 2 telephone interviews/ online questionnaires)
4. Online survey consent page
5. Focus group paperwork and consent form
6. Briefing sheets
7. Recruitment poster
8. Wave one paperwork
9. Summary of changes to the EYFS (2021)
10. Key terms for qualification review
11. Manager feedback on recommendations for practice
12. NCFE CACHE content writer's feedback on recommendations for practice
13. Current version of new DALCo qualification

Appendix 1. Review of Early years qualifications in England.

BIIAB

Technology is only mentioned in their level 2 qualification EYP; one assessment criterion requires the student to demonstrate competence and knowledge in the role of the EYP using technology. This may be assessed via a professional discussion, written work, or a reflective journal entry. Only one piece of evidence would be required to demonstrate competency in this area, as the section is one part of a larger criterion. The requirement is very broad with no specific instructions (for example, demonstrate the role of the EYP in using technology for tracking, observing, communication with parents, or using technology with the children as a tool for teaching and learning); it would be left to the training provider to decide how they wished the student to demonstrate this, so all training providers could cover this differently.

Pearson BTEC

Person has one part of one criterion which mentions technology (in the level 2 EYP qualification in an online safety or online bullying context); in the level 3 EYE qualification, the focus is on how technology is included in the framework under the learning outcome "understanding the world"; these are again, small parts of a single criterion which may only be assessed with one piece of evidence. Their higher-level certificate/ diploma qualification (level 5) has the potential for the learner to focus a whole research project on the impact of new technologies, however, digital technologies is one of a range of topics the learner could choose, so they may not be assessed on this topic at all. Further, in the qualification, there is some "essential teaching" about how digital play theory helps us to understand how children learn through digital play, but it is not something that needs to be assessed, just included in the teaching curriculum.

City & Guilds

Only the level 2 EYP has any content on the use of technology, and this is focussed on the practitioner's roles and responsibilities to use technology in line with organisational policy. There was nothing in either the level 2 or 3 qualification specifications about using technology with children, or as part of the role of the practitioner.

Future Quals

The only relevant qualification offered by this company is the level 3 EYE. The qualification assesses no knowledge or skills on the use of technology in any capacity.

Focus Awards Ltd.

This company offer the level 3 EYE qualification and a level 5 Diploma in Leadership for Health and Social Care and Children and Young People's Services; neither of which contain any learning or assessment on using technology in the role of the practitioner or using technology with children.

NCFE CACHE.

All levels of the CACHE qualifications have some content on using technology. However, each level still has minimal content, and very little skills or knowledge is assessed at each level. Having experienced teaching and assessing on these CACHE qualifications, I am aware that students may only need to plan, implement, and evaluate one activity which is based on an activity using technology with the children; this is very limiting when one considers the vast array of technology used in the practitioner role, and the role of "teacher" when supporting children in using technology.

Ican Qualifications UK (IQC)

This awarding organisation's level 2 and 3 qualifications do have a small amount of content to prepare learners for using technology in early years settings; in the level 2 qualification in the context of safeguarding, and the level 3 qualification the inclusion of technology is part of larger criterion, meaning there would only be minimal inclusion of technology as a standalone topic.

Innovate Awarding (IQO).

Only the level 2 EYP qualification had any content on using technology, and these were in the context of safeguarding children, and using technology safely in the role of the practitioner.

Skillsfirst.

The level 2 and 3 qualification both have some content around the use of technology, however the content is around safeguarding (online safety) and understanding the policies around the use of technology; there is no content about using technology as part of the role of the practitioner or using technology as a tool for teaching and learning.

Training Qualifications UK (TQUK).

Unfortunately, the detailed specifications for the level 2,3 and 5 qualifications offered by TQUK are not available on their website so were unable to be included in the analysis.

Appendix 2. University of Suffolk ethics committee application documents (wave 1; focus groups).

Application Form for Ethical Approval

Research Degree Students

Version 3 dated 26 June 2018

PLEASE NOTE:

The University of Suffolk Research Ethics Framework Document version 5 dated 31 October 2017 provides an ethical framework for staff and students conducting research at the University of Suffolk with humans and other animals. All those conducting research at the University of Suffolk should be familiar with this document.

Please submit your application as ONE document (for example PDF) and include version numbers and version dates in the footer of your documentation.

The Key Principles of Ethical Research are:

Principle 1

The emotional well-being, physical well-being, rights, dignity, and personal values of research participants should be secured.

Principle 2

Research participants and contributors should be fully informed regarding the purpose, methods, and end use of the research. They should be clear on what their participation involves and any risks that are associated with the process. These risks should be clearly articulated and if possible quantified.

Principle 3

Research participants must participate in a voluntary way, free from coercion. Participants have the right to withdraw at any time.

Principle 4

Research must be independent, and any conflicts of interest or partiality must be explicit.

Principle 5

Normally information provided by the participants should be anonymous. At all times confidentiality must be assured.

Applications (completed application form with supporting documentation) must be submitted to the University Research Ethics Committee in advance of the intended start date for data collection. **If research is undertaken without approval, it will not be eligible for submission and could lead to disciplinary action.**

If you need Disclosure and Barring Service Checks (DBS), you must ensure that you apply for it sufficiently well in advance to when you plan to start research. Please contact Human Resources and inform them which category of check you require. If you are carrying out research abroad, you will need to obtain the equivalent of DBS clearance for that country, if required. For further information, please see the Home Office website.

Safeguarding

Safeguarding processes aim to protect children and/or adults at risk. Please refer to the University of Suffolk Safeguarding Policy:
https://mysuffolk.uos.ac.uk/system/files/safeguarding_policy_and_code_of_conduct.pdf

- Working Together to Safeguard Children (2018) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729914/Working_Together_to_Safeguard_Children-2018.pdf
- No Secrets: Guidance on developing policies and procedures to protect vulnerable adults from abuse (2000) http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/194272/No_secrets__guidance_on_developing_and_implementing_multi-agency_policies_and_procedures_to_protect_vulnerable_adults_from_abuse.pdf
- The Prevent duty guidance for Higher Education Institutions https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/445916/Prevent_Duty_Guidance_For_Higher_Education_England_Wales_.pdf Research involving human tissue or samples.

If your research involves human tissue or samples, you need to ensure that you are complying with the Human Tissue Act (2004).

Human Tissue Authority website https://www.hta.gov.uk/

Research involving people 16 years and over who do not have the capacity to consent.

For research involving people over the age of 16 years who lack capacity to consent, you need to comply with the Mental Capacity Act (2005). University Research Ethics Committees are not authorised to review studies that fall under the Act. Research that falls under the Act can only be reviewed by the Health Research Authority and/or the local NHS Trust (where applicable).

Health Research Authority Strategy for Public Involvement https://www.hra.nhs.uk/planning-and-improving-research/best-practice/involving-public/ **Mental Capacity Act (2005)** http://www.legislation.gov.uk/ukpga/2005/9/contents

Staff and Students working within the NHS should note that they may also need to apply for ethical approval through the Health Research Authority. Most research projects in the UK can make use of the coordinated NHS permission systems. These systems coordinate the handling of UK-wide studies and streamline the review process by conducting a single review of all the aspects that are relevant to the whole project. Approval is required for all projectbased

research in the NHS that is led from England. For detailed guidance, go to the Integrated Research Application System (IRAS) (https://www.myresearchproject.org.uk/help/hlphraapproval.aspx).

Health Research Authority website www.**hra**.nhs.uk/

Late Submissions

Please note that submissions that are received late will NOT be considered until the next meeting of the Panel, save in the most exceptional circumstances. Delay in starting research will not normally be accepted as an exceptional circumstance.

Amendments

If you need to make changes, please ensure you have permission before the primary data collection. If there are major changes, you may need to complete a new application for ethical approval. If there are minor changes then fill in the Changes to Ethics Approval Permission Form on MySuffolk and return this to the Committee for approval before the primary data collection begins.

Risk Assessment

When relevant, a Risk Assessment must be undertaken, and particular attention must be given to the researcher's own health and safety as well as issues of communication and security.

Data Protection

If you are collecting and/or processing data relating to living EU citizens, then you are required to comply with the EU General Data Protection Regulation (GDPR) and the Data Protection Act 1998.

http://eur-lex.europa.eu/eli/dir/2016/680/oj/eng

https://gdpr-info.eu

https://www.eugdpr.org/the-regulation.html

In summary, you are agreeing that you will adhere to the following criteria:

- To minimise the amount of personal and sensitive personal data stored in terms of quantity of information, length of time stored, number of individuals with access, and nature of processing:
    - Personal data is defined as anything used to directly or indirectly identify the person. This includes but is not limited to a name, a photo, an email address,

bank details, posts on social networking websites, medical information, or a computer IP address.

  - Sensitive personal data includes racial or ethnic origin, political opinion, religion or beliefs, trade union membership, genetic or health status, biometric data, or sexual orientation.

- To ensure participants are made aware of the purposes for which data is collected, who will store the data, who will process the data, and how it will be used. This should be made explicit in your Participant Information and Consent Sheet forms.
- To ensure that all data stored on home and mobile devices, including (but not limited to): mobile phones, desktops, laptops, tablets, portable hard drives, cds/dvds, and USBs is strongly password protected and encrypted.
- To ensure that any cloud storage used for the data is secure and the cloud servers are based in the UK or EU.
- To ensure that all transfers of data are undertaken in a secure fashion – uploaded and downloaded to password-protected cloud storage using secure protocols (https, sftp, etc), and secured files (i.e., password-protected with passwords sent by separate email).
- To ensure all non-electronic data (e.g., paper documents) and insecure media (e.g., audio cassettes) are stored in a locked cupboard.
- To wherever possible pseudonymise and/or anonymise data such that it is non-trivial for you or third parties, potentially using additional data points, to recover the identities of the participants. Where data has been pseudonymised, to ensure that the key mappings of real identities to pseudonymised codes are securely stored.
- To use pseudonymised and/or anonymised datasets to fulfil the stated research purposes, and only to use pseudonymised and/or anonymised datasets for processing to fulfil additional related research purposes that emerge after the data collection has been completed.
- Where storage, processing or analysis of data is delegated to other individuals or organisations, to only delegate storage, processing or analysis to GDPR-compliant individuals and organisations.
- To report immediately any security breach (e.g. accidental password reveal, suspected or actual hacking attempt, misdirected email communication, etc.) or loss or theft of data (e.g. through loss or theft of portable devices or media) to the Data Protection Officer (Fiona Fisk - dataprotection@uos.ac.uk) for the University of Suffolk and your primary supervisor (if you are a PhD student).
- To ensure the secure disposal of raw datasets when no longer required for the authorised research purpose.
- To ensure the secure disposal of pseudonymised datasets when no longer required for any authorised research.

ETHICS APPROVAL APPLICATION FORM

Please give an answer to **ALL** questions. Failure to do so will result in automatic voidance of application. You may use the term ‘not applicable’ where necessary. Please consult the University of Suffolk Student Guide to the Ethics Approval Process, available on the MySuffolk for guidance on completing this form.

Emma Harvey S103995

PhD Student details:

Name(s):	**Emma Harvey**
Primary Supervisor	**Emma Bond**
Second Supervisor	**Andy Phippen**
Registered with UEA or Essex?	**UEA**
Internal Assessor at UEA	**Victoria Carrington**
University of Suffolk School/Institute:	**Education**
University of Suffolk email address:	**e.harvey@ucs.ac.uk**
Date of Progression Board	**TBC**
What sessions have you attended from the Suffolk Doctoral Training Programme?	**Advanced literature searching, Refworks, Brightspace, Using social media for research and professional networking, plagiarism, Ethical principles workshop,**
Training sessions completed on UEA doctoral programme:	**GDPR online training, ethics online training, Freedom of information online training, Ethical training workshop (UoS)**

Section 1: RESEARCHER AND PROJECT DETAILS

I am carrying this project out as:

(Tick as many as needed)

PhD research project	☒
Externally Funded project (state funding body)	☐
Other (please describe)	☐

Project	
Project Title:	An investigation into perspectives of Technology Enhanced Learning in early years settings
Data collection start date: *(Note **must** be prospective)*	02/12/2019
Expected project completion date:	31/03/2020

Does your study entail collaboration with other Researchers/Organisations?
No
If the research is collaborative has a framework been devised to ensure that all collaborators are given appropriate recognition in any outputs? *N/A*

Emma Harvey S103995

SECTION 2

1.

Summary of main issues (if applicable) PLEASE NOTE; MY APPENDICES BEGIN ONPAGE 19

Please summarise the main ethical, legal, or management issues arising from your study and say how you have addressed them:

This application is for the second part of a multi-layer research project. The first "wave" of data collection involved online surveys completed in January 2019. From the data collected in wave 1, some interesting themes emerged which I would like to investigate further with face-to-face conversations (focus groups) and a word association activity (appendix 3) with early years practitioners to discuss topics around the use of technology with children in a learning capacity. The focus groups will collect data on the views of practitioners, their levels of confidence in working with technology, and whether they feel their early years training prepared them for this (see appendix 1 and 1A). These are the areas of significant interest from the online surveys.

This application is to collect data from setting practitioners through the following methods:

Focus groups carried out in the practitioners setting. I intend to ask teams of practitioners to attend focus groups that will be audio recorded. The size of the groups will depend on the size of the setting team. Each setting will be asked to hold one focus group. It is hoped I can hold between four and eight focus groups, depending on the number of settings who agree to hold a group. The focus groups will be held at the early years childcare provider setting (for convenience) I propose to hold the focus groups after their regular staff meetings, to ensure the majority, if not all of the team are present.

Word association activity to start the process. Each participant will be given a sheet (appendix 3) which gives participants an opportunity to write down ideas around the theme of technology use, giving prompt words or questions. This will assist in preparing the participants for the focus group discussion.

Main ethical considerations to address when working with people (adults).

1. Ethical conduct by the researcher. Addressed by research and training on ethical research techniques, strategies, and practices to ensure high standards of integrity, transparency, and respect. Considered ethical standards from NSPCC, BERA, UNICEF and ERIC, along with the study of UoS and UEA ethical conduct in research guidance. Approval sought from UoS ethical committee before commencing research. Ensure participants are aware of the UoS ethical committee agreement that the research plan has been approved before the commencement of data collection.

2. Informed consent: In accordance with Data Protection Principle 2 (ITGovernance.eu, 2019), Permission will be sought prior to

any data being collected. The briefing sheets (appendix 2) will give clear guidelines as to the purpose of the research, and that data will be used for this purpose only. Briefing sheets will be given to the setting manager at the time of arranging the date and time of the focus group. 1 paper copy for each member of staff will be left with the manager to hand out prior to the focus group, allowing each member of staff to read the brief and decide if they would like to participate.

3. Power relationship: Participants must be clear on the nature and intention of the research and agree to participate for genuine reasons of being part of improving the provision for settings. To ensure this is the case, the intentions and potential risks and benefits of the research must be clearly given as part of the introduction brief (appendix 2).

4. Degree of participation: Participants may give consent to participate, however, once they are asked questions during the focus group, they may not want to answer 1 or more questions (although they may agree to answer some). This must be clearly explained in the information prior to consent; participants have the right to refuse to answer part or all questions, and this will not affect their participation.

5. Conflict of interest to participation (settings): By using settings that are known to the researcher through her professional "day job", will the setting practitioners feel obliged to respond in a certain way? To address this issue, the researcher will make clear this research is completely independent of the researcher's role as a tutor and assessor of student early years practitioners and has no bearing on their training or practice. There will be no consequence in terms of receiving or not receiving student EYPs in the future because of taking part (or refusing to take part) in this study. The researcher will also ask questions in an open manner so as not to "guide" participants to answer in a certain manner (please see appendix 1A for a copy of the focus group questions).

6. Conflict of interest for practitioners: Individuals may be concerned that if they speak freely about their views on the provision and training around technology enhanced learning, that their views may negatively affect their career within their setting. This will be managed by ensuring individuals that their data will be anonymized as much as possible during forum participation and interviews, and data will not be shared with individual setting managers or owners as a matter of "debriefing". All settings will be welcome to view the study as a completed thesis, should they wish, but the individual employees' "input" to the study will not be disclosed to employers. For those participating in the focus group, only their initial will be shown, and data will be anonymized during data analysis.

Ensuring participants understand that main aspects of the research; how and why they have been selected and asked to participate; the purpose and aim of the research; how this research may benefit a group of society (namely, preschool children, their families, and potentially society as a whole), and any potential risks to participation; what the commitment from them will involve; how data will be collected, stored, utilised, and destroyed once the research is complete (under GDPR 2018 principle 5 guidelines) (itgovernance.eu, 2019); who will have access to the their data at each point of the process and afterwards; what data will be collected and the purpose for the collection of this data. These aspects will be explained to adults in the form of a briefing sheet that will be handed out before the focus group (see appendix 2 for briefing sheet There must be sufficient time for the participants to consider these issues and agree to participate.

7. Ensuring gatekeepers (namely setting managers) are fully aware of the research aims and objectives, how the data will be collected from participants that they understand the nature of the research before participants are selected, that participants are volunteering their data, and that this data can be withdrawn up to a predetermined date. This is all explained in the briefing sheet (appendix 2).

8. Ensuring inclusion and equality of access. This consideration is essential when considering practitioners who may not use English as their first language, and find speaking, reading, and writing in English difficult. If this presents a barrier to participation in the focus group data collection, methods to interpret will be sought, such as software to translate, or questions being translated into another language. For those who do not read or write, the main aspects of the research relevant to participants being able to give informed consent would be explained verbally, and a method of consent used which is "non-written", for example, a tick or other symbol against their name; questionnaire questions can then be read to the participant (by the researcher). For participants with special educational needs, additional needs, or disability, the researcher will assess the needs of the individual, and the methods to overcome any barrier to understanding the aims and objectives of the research, being informed of the research, and giving informed consent. As there are too many individual needs to list, the researcher will have to assess individual needs on an individual basis and devise a plan to accommodate these needs. However, as the focus groups are taking place of work, it is hoped their needs would be supported at this location anyway.

9. Ensuring participants' anonymity. All participants will be given pseudonyms to ensure real names and company organisations are not revealed. Broad geographical locations may be used within the presentation of data, as this may have relevance to the findings (and the relevance of this data will be explained to participants to validate its inclusion). Focus group participants will be made aware that their names will not be used, and as much identifying data as possible will be changed, however, it will be made clear in the briefing information, that although anonymity will be upheld as much as possible, there is always the risk that an individual may be able to identify a person or organization from the data given (data linkage). It is hoped participants will understand the researcher will take every precaution to minimise the risk of this occurring. Participants will be made aware that the only individuals to see the initial data will be the researcher and possibly the PhD supervisors; anonymized data may be seen by the researcher, PhD supervisors and assessors, and the anonymized data will be kept for 5 years after the completion of the PhD thesis, as there may be potential to publish in peer reviewed journals (this also means their (anonymised) data will at this point viewed by
many academics reading these journals). Data will be coded and analysed by the researcher herself (no administration or secretarial assistance will be employed).

10. Ensuring participants' confidentiality: Participants will be made aware of the importance of their confidentiality in this project. To protect settings and individuals' reputations and privacy, participants will be aware that as part of their informed consent orally at the beginning of the focus group, they are agreeing to refrain from discussing any aspect of the research with others outside of the setting.

11. Researcher confidentiality: Participants will be made aware of the researcher's duty to maintain confidentiality to details of the research and it's participants (except in the circumstances surrounding a safeguarding concern, in which case the researcher has a duty of care under "Working Together to Safeguard Children", 2018 Legislation (Gov.UK, 2019) to report these concerns to the setting (should the concern be about a child or employee), or to "Customer First" should the concern be about the welfare of an adult.

12. Ensuring the wellbeing of participants. Participants are a valuable and essential asset to the study; without participants, the research cannot take place. Therefore, participants' wellbeing is paramount. Consideration for participants' wellbeing includes the location of focus groups. For those who agree to participate, the focus groups will take place at the setting of employment. Location, day, and time will have to be agreed, based on collecting data through audio recording, but also, to ensure the participant is available, and comfortable. Participants will be reminded that although
the focus groups will be taking place during or after their staff meetings that they are under NO obligation to stay for the focus group. They will be free to leave the setting if they have had a long day or do not want to be in their work environment any longer. Further consideration will be taken for food and drink provision by speaking with the setting manager before the meeting to ask what snacks and drinks would be preferable to the team and supplying these so practitioners are not hungry and thirsty after their staff meetings.
Ensuring participants are happy to be involved and have comfort considerations of snacks, drinks, and a

comfortable area to participate; the focus group can take place. Wellbeing and safeguarding will be monitored throughout the focus group, asking if participants need comfort breaks every 20 minutes to give participants the opportunity to visit the restroom or stretch their legs (these FGs will be held after staff meetings which usually happen at the end of the day so consideration is needed to the level of work participants will already have undertaken that day). If wellbeing or safeguarding becomes a concern during an activity of discussion, the participant will be given the opportunity to leave the room, or to stay but refrain from participating further. At the first opportunity, I as the primary researcher will speak to the participant to find out if there is anything I can do to increase their wellbeing or if there is a concern that requires safeguarding protocol. Should safeguarding protocol be required, I will follow the setting's safeguarding/ whistleblowing protocol, or contact LADO.

For participants who have mental health or disability needs. The researcher will have a conversation with the manager of the setting when the focus group is arranged to find out if any of the potential participants (their employees) have any requirements or needs that I should know about. I will ask how best to accommodate these needs. Should the participants decide to be included in the focus groups, I will ask them if there is anything I can do to make their participation easier. For example, if the participant has a hearing issue, I will ensure they are sitting next to me so they can hear the topics for the discussions. If a participant has anxiety issues, I will ensure they have a copy of the focus group topics in good time before the event, so they are prepared for the topics to be discussed to reduce levels of anxiety over unknown conversation. Each individual need will be considered and supported, depending on the need.

13. Comfort expenses covered, not remuneration or inducement: Participants will be given refreshments (brought to the setting by myself). These will be agreed with the manager before the focus group to ensure any food and drink allergies and intolerances are catered for. Light refreshments will be provided, as some focus groups may take place after a staff meeting or working day, meaning staff may be tired, hungry, and thirsty. Therefore, I will ensure staff are provided with refreshments to create an environment that is comfortable for them.

14. Safeguarding protocols: The researcher has a full enhanced DBS with update service, and safeguarding training updated in September 2018. The researcher is also experienced in working in early years settings; this will be included within the briefing information. There is a risk a participant may disclose (or the researcher may notice) a cause for concern surrounding the wellbeing of the participant. Should this occur, the researcher must be aware of the designated safeguarding lead for the setting and follow the setting's reporting procedure (for managers and employees of settings). The researcher will have support group information available during the data collection process. A clear, factual, report style record of the disclosure will be written by the researcher, and actions taken (i.e support signposting, Customer First contacted for advice) will be recorded. These safeguarding protocols will be clearly stated on the front the information pages, and the participants made aware of these before agreeing to participation.

15. Booking of appointments for focus groups (managing time without disrupting settings): Appointments to conduct focus groups will be scheduled to suit the participants, as the researcher is aware of the difficulties in "freeing up" staff in settings due to staff ratios. Participants will be given clear information on the duration of the focus group process, so arrangements can be made. Focus groups will be booked in advance, and dates chosen during quieter times of the year (school holidays where numbers are lower due to the majority of cohorts being "term time only").

16. Ensuring participants have information on how to withdraw their data from the study, and the cut-off point (one month after data is collected) for their withdrawal of data (also why there has to be a cut-off point). This information will be included in the information presented prior to agreement to participate.

17. Storage of data:

A) Audio recordings; will be kept in a locked cabinet at the University. Once this data has been transcribed onto a password protected (GDPR compliant) secure cloud storage system (Google Drive) (anonymized at this point), B) audio versions will be stored until the end of the PhD process, then deleted from the cloud.

C) Paper documents (word association sheets) will be stored in a locked cabinet at the University. These documents will be used in thematic analysis and kept until the PhD process is complete. Upon completion of the project, these documents will be shredded at the university.

How will potential participants, records or samples be identified? Who will carry this out and what resources will be used?	
The researcher will identify participants using the methods outlined below.	
Research Participants	
Children and young people (under 18 years old)	☐
Adults (over 18 years old and competent to give consent)	☒
Carers	☐
Parental or Guardian Consent	☐
Suffering a physical vulnerability (this is not an intentional group, but may be within the sample)	☒
Suffering a psychological disorder (this is not an intentional group, but may be within the sample)	☒
Dependent relationships with the researcher	☐
People from non-English speaking backgrounds (this is not an intentional group, but may be within the sample)	☒
Adults or youth offenders detained at Her Majesty's convenience	☐
Adults (over 18 years old with learning disabilities, mental health difficulties, confusion, dementia physical illness and other impairment preventing informed consent) (this is not an intentional group, but may be within the sample)	☒

Vulnerable Children and young people (under 18 years old) with learning difficulties, mental health difficulties, confusion, and other impairment preventing informed consent	☐
None of the above	☐
Please state the number of participants	40 (est)
Early years staff will be selected through random sampling. Settings will be contacted via face-to-face visits. I will present the information brief (see appendix 2) to the setting manager and ask if they think their staff team would be willing to spend one hour after their usual staff meeting (so all staff are present in the building) to participate in the focus group.	

How does your study include involvement with members of the public? *Include the numbers involved and information about what the members of public involved will do to support the conduct and management of the study as well as the dissemination of its findings.*
Participants are members of the public (albeit employed as early years practitioners) est. number of participants 40.

Give details of all procedure(s) that will be received by participants as part of the study.

Interviews ☐

Focus Groups ☒

Questionnaires ☐

Action Research ☐

Audio-taping interviewees or events ☐

On-line searches ☐

Performance measurement ☐

Physiological measurement ☐

Laboratory based experiment (please provide details)	☐
Physiological self-assessment (please provide details)	☐
Psychological self-assessment (please provide details)	☐
Psychological experimentation (please provide details)	☐
Animal feeding/Therapeutic trials (please provide details)	☐
Adding to or changing an aspect of an animal's environment (including enforcing physical exercise) (please provide details)	☐
Animal Breeding projects (please provide details)	☐
Other (please specific in the box below)	☐

How long do you expect each participant to be in the study in total?
Focus groups will last for approximately 1 hour. The researcher will endeavour to conduct the groups promptly after the participants agree to take part; However, due to arranging a suitable and convenient time, it may take up to 4 weeks to arrange a focus group.

As a Researcher, do you have any relationship with the participants such as a friend, colleague, client, student and/or patient?
I may have a working relationship with some of the participants (some may be known to me through my day job, as I visit early years settings to assess college students in placements at Suffolk settings). The relationship I have with the providers is a distant working relationship. Settings I work with will have the opportunity to accept (or not answer) invitation to participate.

	What are the potential risks and burdens for research participants and how will you minimise them?

For all studies, describe any potential adverse effects discomfort, distress, intrusion, inconvenience, or changes to lifestyle. Only describe risks or burdens that could occur as a result of participation in the research. State what steps would be taken to minimise risks and burdens as far as possible.

For setting practitioners:

- *Time constraints: practitioners are very busy and are counted in staff ratios or the designated safeguarding lead for their setting, so are not able to leave their premises during working hours. Therefore, focus groups will need to be conducted at their place of work, out of hours. ● Risk of anonymity of individual or setting breach: As previously mentioned, as far as possible, the names and details of individuals and settings will be changed to minimise the risk of anonymity breaches. However, it may still be possible to place an individual or setting within the data (data linkage), should a reader have background knowledge on participants. Therefore, this risk will be disclosed at the time of consent.*
- *Physical discomfort: the interviews may take up to an hour. Consideration for personal comfort will include having hot and cold drinks and snacks available for participants, toilet facilities, along with regular comfort breaks.*
- *Having the researcher enter their setting; all visitors to a setting must be properly supervised to minimise the risk of harm to the children in the care of the setting. To support this, the researcher will give the manager of each setting entered her enhanced DBS update service number, which can be recorded in the setting's visitors book to evidence safeguarding protocols have been followed (in accordance of "Working Together to Safeguard Children, 2018), and the researcher will follow all instructions given regarding moving around the setting (although it is highly likely there will be no children present at time of the focus groups). Settings will be made aware I have updated safeguarding training, completed in September 2018.*

Will you record informed consent in writing? If not, how will consent be obtained?

No. Participants will be asked at the start of the focus group (during audio recording if there is anyone who does not understand any of the briefing paper, or there is anyone who does not want to be present for the focus group or give their consent. For those individuals who stay it will be taken that they understand the brief, they give consent to participate and have their data collected and used in the study.

What are the potential risks for the researchers themselves? (If any)

Risk that a safeguarding disclosure may be made to the researcher during a focus group. To manage this risk, the researcher will be fully aware of the safeguarding protocols for the setting the employee is connected to (in accordance with "Working Together to Safeguard Children" (2018)).

Will you be using somebody else to transcribe or analyse the raw data?
No
If yes, you need to ensure that they are GDPR compliant.

Who will have access to participants' personal data during the study?
Researcher, supervisors

Do you intend to keep raw data after the completion of your studies? If yes, for how long and how will it be stored?
Anonymised data will be kept for up to 5 years (to be used only for publishing for peer-reviewed journals). Pre anonymization process data will be destroyed after completion of the PhD process

Do you or any other investigator/collaborator have any direct personal involvement (e.g., financial, personal relationship etc.) in the organisations sponsoring or funding the research that may give rise to a possible conflict of interest?
No

How do you intend to report and disseminate the results of the study?

Peer reviewed scientific journals	x
Internal report	x
Conference presentation	x
Publication on website	x
Other publication	x
Submission to regulatory authorities	
Thesis	x
Other (please specify)	

Will you inform participants of the findings?

Yes	☒
No	☐

Please give details of how you will inform participants or justify if not doing so

If participants wish to be informed of the findings, they will be emailed a summary of the thesis (which will contain data from many participants). Individuals' data will not be shared with participants.

Please provide all the relevant supporting documentation (Project Proposal, Participant Information Form, Participant Consent Form, Invitation Letters, Interview schedule, questionnaires, etc.) related to your application to ethics.

Please include version numbers and dates in the footer of your supporting documentation. Version numbers and dates will help the University Research Ethics Committee identify original and updated documents.

References:

Itgovernance.eu (2019) *The GDPR: Understanding the 6 data protection principles* [Online]. Available at: https://www.itgovernance.eu/blog/en/the-gdpr-understanding-the-6-dataprotection-principles-2 [Accessed 25th January 2019].

Working Together to Safeguard Children (2018) *Working Together to Safeguard Children A guide to inter- agency working to safeguard and promote the welfare of children* [Online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729914/Working_Together_to_Safeguard_Children-2018.pdf [Accessed 25th January2019].

Section 3:

Student Declaration

By sending this form from my University of Suffolk e-mail account I confirm that I will undertake this project as detailed above.

I understand that I must abide by the terms of this approval and that I may not substantially amend the project without further approval.

Emma Harvey S103995

Student signature: E. Harvey Date: 25.01.2019

Primary Supervisor signature: Date:

Second Supervisor signature:

Date:

University Research Ethics Committee Panel outcome

X ☐	*Approved*
☐	*Approved with Recommendations (see comments section)*
☐	*Approved with Conditions (see comments section)*
☐	*Not Approved (see comments section)*

Online questions on security-sensitive material

Does your research fit into any of the following security-sensitive categories? If so, indicate which:

a. Commissioned by the military:

Yes ☐ No ☒

b. Commissioned under an EU security call:

Yes ☐ No ☒

c. Involve the acquisition of security clearances:

Yes ☐ No ☒

d. Concerns terrorist or extreme groups:

Yes ☐ No ☒

If your answer to question 1d is yes, continue to the questions in Appendix 2.

The Terrorism Act (2006) outlaws the dissemination of records, statements and other documents that can be interpreted as promoting or endorsing terrorist acts.

1. Does your research involve the storage on a computer of any such records, statements, or other documents?

Yes ☐ No ☒

2. Might your research involve the electronic transmission (e.g., as an email attachment) of such records or statements?

Yes ☐ No ☒

3. If you answered 'Yes' to questions 1 or 2, you are advised to store the relevant records or statements electronically on a secure university file store. The same applies to paper documents with the same sort of content. These should be scanned and uploaded. Access to this file store will be protected by a password unique to you.

You agree to store all documents relevant to questions 1 and 2 on that file store: Yes

☐

3a. You agree not to transmit electronically to any third- party documents in the document store: Yes

☐

4. Will your research involve visits to websites that might be associated with extreme, or terrorist, organisations?

Yes ☐ No ☒

5. If you answer 'Yes' to question 4, you are advised that such sites may be subject to surveillance by the police. Accessing those sites from University IP addresses might lead to police enquiries.

Please acknowledge that you understand this risk by putting an 'X' in the 'Yes' box. Yes

☐

You will find a form for 'reporting security sensitive research projects' on MySuffolk: https://mysuffolk.uos.ac.uk/research-ethics

6. By submitting to the ethics process, you accept that the Research Development Manager will have access to a list of titles of documents (but not the contents of documents).

Please acknowledge that you accept this by putting an 'X' in the 'Yes' box.

Yes ☒

Countersigned by the PhD supervisor:

UoS Appendix 3 - Participant Information and Consent Sheet

Participant Information Example of a Template

You will need a version of this document for each participant group

Emma Harvey S103995

Study Title:

Main Investigator:

Academic Supervisor (for Student research):

This template is to assist students and staff in the development of a 'Participant Information and Informed Consent Form'. It is important that you adapt this template to suit the audience and nature of your study.

Example

You are invited to take part in a study on […].

This Participant Information Sheet will help you decide if you would like to take part. It sets out why we are doing the study, what your participation would involve, what the benefits and risks to you might be, and what would happen after the study ends. We will go through this information with you and answer any questions you may have. You do not have to decide today whether you will participate in this study. If you agree to take part in this study, you will be asked to sign the Informed Consent Form. You will be given a copy of both the Participant Information Sheet and the Informed Consent Form to keep. Please make sure you have read and understood all the pages of the Participant Information Form.

1. What is the purpose of the study?
2. What will my participation in the study involve?
3. What are the possible benefits and risks of this study?
4. Who pays for this study?
5. What if I feel uncomfortable with an aspect of the study?
6. What if I don't want to answer a question being asked of me?
7. What are my rights?
8. What happens if I change my mind?

9. What happens after the study?

10. Who do I contact for more information if I have concerns?

11. How will my data be stored and for how long?

12. How will my data be destroyed?

Please refer to the 'Participant Information Sheet and Informed Consent' - Guidance document version 2 dated 28 February 2018.

Informed Consent Form Example of a Template

The University of Suffolk expects all research to be carried out in accordance with the following principles:

- The emotional well-being, physical well-being, rights, dignity, and personal values of research participants should be secured.
- Research participants and contributors should be fully informed regarding the purpose, methods, and end use of the research. They should be clear on what their participation involves and any risks that are associated with the process. These risks should be clearly articulated and if possible quantified.
- Research participants must participate in a voluntary way, free from coercion. Participants have the right to withdraw at any time.

This research has been approved by the University of Suffolk Ethics Panel. Should you have any concerns about the Ethics of this research, please feel free to contact the Chair of the Ethics Panel,

Professor Emma Bond e.bond@uos.ac.uk (01473 338564) or the Research Development Manager, Andreea Tocca a.tocca@uos.ac.uk (01473 338656).

Study Title:

Main Investigator:

Academic Supervisor (for Student Research):

Please initial the boxes below.

I confirm that I have read and understand the information sheet/letter (delete as applicable) dated *[insert date]* explaining the above research project and I have had the opportunity to ask questions about the project.	
I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences.	
I understand that my responses will be anonymised and any personal or identifying information removed from published materials	
I give permission for members of the research team to have access to my anonymised responses.	
I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research.	

I understand that the data I provide will be used solely for the purposes of the research study outlined and will not be used for any other purpose. I also understand how long my data will be stored for.	
I agree to take part in the above research project.	

_____	_____	_____
Name of Participant	Date	Signature
(*Or legal representative*)		
_____	_____	_____
Name of person taking consent*	Date	Signature
(**if different from lead researcher*)		

To be signed and dated in presence of the participant

_____	_____	_____
Researcher*	Date	Signature

To be signed and dated in presence of the participant

**Delete as appropriate* Copies:

Once this form has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, the letter/information sheet and any other written information provided to the participants.

A scanned copy of the signed and dated consent form should be placed in the project's main record by the student/researcher/PI. This must be kept in a secure location.

Focus group questions

Following on from my initials surveys, I summarised the following areas for development:

I am very interested in following up the responses of practitioners on their early years training and subsequent CPD. Especially, that most (80% of participants of my online survey) feel confident in using technology; where does this confidence come from if not from formal training? Also, to find out if practitioners believe technology should be included in training for EYPs, and if they believe there should be CPD on the use of technology as things change within this area.

I am also interested to find out more about practitioners views on the curriculum, as it currently stands, and their views on the plan to remove technology from the curriculum in the future. Whether

they feel their practice or provision will change, and how they feel about their role in preparing children for the EYFSP; does their provision do enough to prepare children for the ELG UTW; technology. Do they feel early years setting in general prepare children for this, or is it down to the reception class teacher to do this?

I would like to find out whether they have seen differences in children's ability, competency, and skill in using technology; do they feel there are inequalities in this (which may be widening further if technology is removed) so some children have almost no experiences with technology from home or their EY setting, and then once they start school are at a disadvantage? I feel some observations in settings of the children using technology, followed up with focus groups with staff would help develop these areas further.

I would like to use a number of different settings (including Saplings, Pixels, Little Leaders, Grange Farm nursery) as these present a variety of environments, mission statements and resource levels to give a range of responses coming from a variety of approaches).

Therefore, to develop this further I would like to set the following questions to start discussions:

1. Tell me about how you use technology with the children in your setting…
2. What technology equipment do you have in your setting?
3. Do the children use these as adult lead or child lead?
4. Having carried out some research on practitioners' qualifications and CPD since qualifying, 80% of respondents felt their qualifications did not prepare them for working with technology with children, and very few had received any CPD on the use of technology since qualifying. Is this similar to your experiences of your training, and how do you feel about this?
5. Most of the respondents of my survey felt that despite having little or no training on using technology in their work role, they felt confident to use technology with the children. Is this true for you? and, where does your confidence come from if not from formal training?
6. Do you think there should be more/ less/ the same of focus on using technology with children, and using technology for tracking, observing etc within the early years practitioner and EYE qualifications?
7. What are your thoughts on whether training should change for new EYEs in relation to using technology in settings?
8. I'm sure you have read that there has been a new EYFS framework being trialled, which is due to be implemented from September 2020. This new framework does not include technology or ICT in any of the areas of learning and development, and subsequent early learning goals. What are your thoughts on this?
9. Will this affect how you use technology (if you do not have to prepare children for the UTW ELG that currently includes technology)?
10. How do you see your role when supporting children to use technology?

Focus Group EH prompt sheet

BEGIN RECORDING ON DICTAPHONE

Before we begin the questions, I would like to thank everyone for agreeing to take part in the focus group. I would also like to have on record I have provided each of you as participants a briefing sheet which sets out your rights as a participant on topics such as how your data will be collected, stored, used, and deleted, how to withdraw your consent later, and that you are all happy with these. I would also like to remind you all that we are audio recording the focus group, and in participating in the focus group, you are giving your consent for your

voices to be audio recorded. If there is anyone who does not consent to this, please feel free to leave now.

1. Tell me about how you use technology with the children in your setting…
2. What technology equipment do you have in your setting?
3. Do the children use these as adult led or child led?
4. Having carried out some research on practitioners' qualifications and CPD since qualifying, 80% of respondents felt their qualifications did not prepare them for working with technology with children, Tell me about your experiences of training and CPD around technology use...
5. Most of the respondents of the survey felt that despite having little or no training on using technology in their work role, they felt confident to use technology with the children. What are your thoughts on levels of confidence in using technology with the children?
6. Do you think there should be more/ less/ the same focus on using technology with children?
7. How do you feel about using technology for tracking, observing etc within the early years practitioner and EYE qualifications?
8. What are your thoughts on whether training should change for new EYEs in relation to using technology in settings?
9. I'm sure you have read that there has been a new EYFS framework being trialled, which is due to be implemented from September 2020. This new framework does not include technology or ICT in any of the areas of learning and development, and subsequent early learning goals. What are your thoughts on this?
10. Will this affect how you use technology (if you do not have to prepare children for the UTW ELG that currently includes technology)?
11. How do you see your role when supporting children to use technology?

Briefing sheet for focus groups

University of Suffolk, Waterfront Building, 19 Neptune Quay, Ipswich IP4 1QJ e.harvey@uos.ac.uk

Study title: An investigation into perspectives of technology-enhanced learning in early years settings.

Main investigator: Emma Harvey

Academic supervisors: Professor Emma Bond; Professor Andy Phippen

Date:

Dear Recipient Name:

My name is Emma Harvey, and I am a postgraduate research student at the University of Suffolk, undertaking a PhD research project to explore the views of early years practitioners on the use of technology in early years settings.

As a student at the University of Suffolk, I have undertaken training on conducting research in an ethical manner, and I am guided by a supervisory team, and the ethics committee of the University. Both parties have examined the proposed research, to ensure participants are protected as far as can possibly be envisaged. Every effort has been made to ensure participants can speak freely on the topic. If you have any concerns about the ethics of this research, please feel free to contact Research Development Manager Andreea Tocca a.tocca@uos.ac.uk (01473 338656).

I would like to ask if you would agree to take part in a focus group with your team. During the group discussion, we will talk about your thoughts, views, and feelings about using technology within the setting, for educational activities with the children, and how you use technology to observe, record, monitor and track children's progress.

For those who agree to take part in the research, this brief sets out the aims of the research, what "being a participant" means for you, and how your data will be used. It also explains your rights as a participant.

The main aim of the research is to explore:

- What early years practitioners' views are on the use of technology in settings.
- Whether they feel confident in the use of technology.
- How they feel their early years training helped them to prepare for the use of technology with children.

- Whether they have had any post qualifying training or CPD on the use of technology both with the children, and for observing and tracking children's achievements and progress.
- Their views on the amount of inclusion of technology within the EYFS framework, and
- If they feel technology use in early years settings has positive or negative effects on the overall provision of early years care and education.

It is hoped this research will give a "voice" to practitioners, who may want to share their opinions on this topic.

All practitioners are welcome to participate, regardless of their employment status or length of time as a practitioner. Those who may have additional language, learning of physical needs are also very welcome to participate; If you require additional support, have particular environmental needs or support to communicate during the focus group, please advise the researcher.

If you agree to participate:

Your wellbeing

Your wellbeing as a participant is of utmost importance; ensuring you are both physically and mentally comfortable with participating in the study is the main priority of the researcher. Therefore, the focus groups will be carried out at times, days and locations that best suit your team. Focus groups will be carried out at your place of work, so you are familiar with the facilities, and drinks and snacks will be provided. Comfort breaks will also be guided by you. As I will be visiting your setting, I can supply my Enhanced DBS update number, should you wish to record this for safeguarding protocols. I have updated safeguarding training (September 2018), and experience in working in settings.

Your rights, dignity and personal values are paramount; individuals participating in the research will have their views heard in a safe, non-judgmental manner. The views of all participants will be valued, and all participant views will be entered into the dataset. Part of the ethical considerations undertaken as part of the planning process was to ensure that I collect data in an unbiased way, without projected outcomes or a "preconceived idea" of how participants will contribute to the focus group topics. This research is an independent study, with no motive, other than to *explore the views* of practitioners on the topic of technology in settings; therefore, all views will be collected, and used within the study.

The commitment from you

The commitment would involve being part of your team of colleagues who meet with the researcher (myself) for between 45 minutes to one hour. Participation would involve a group

informal discussion and agreeing to have this discussion audio recorded so I can ensure I do not miss any vital information the practitioners tell me. There is no financial reward for taking part. Once the focus group has been completed, there is no further commitment. There is also no consequence for deciding not to take part; you are under no obligation to partake.

How data will be collected

With your permission, data (the focus group discussions) will be captured through recording of voices you) and (myself. There will be no video recording, and only those involved in the focus group will be in the room. The questions are related only to your views and experiences of working in settings using technology.

The audio equipment used to record the interviews will be a Dictaphone (no video recording possible). This is for participants' peace of mind, and to maintain safeguarding protocols.

How data will be stored

The storage use and deletion of data has been carefully considered in accordance with the General Data Protection Regulations (2018). The audio recordings will be stored at the University of Suffolk within the postgraduate research room in a locked cupboard. Data will be kept on USB storage. The interview

Recordings will be transcribed into "data" at the University site; once the Dictaphone reaches the university site, the recordings will not leave this location (they will be deleted on site).

Should a data breach occur (data stored on the cloud system), I will contact the University data protection officer and my primary supervisor immediately, in accordance with the Post Graduate Researcher policy.

How data will be used

The answers and comments made to the focus group questions will be transcribed into "data" (at this point, your data will be anonymized). This anonymized data will be coded using software that will search for themes "thematic analysis". The data will be used within the PhD thesis, and potentially articles or pieces for peer reviewed academic journals. It is important participants are aware that in agreeing to take part in the study, they are also agreeing to their interview answers being used not only for the purpose of the PhD thesis, but also potentially in subsequent pieces for academic journals. The data will be used by myself, no other students, academics, or writers will have access or permission to use the answers you provide.

The anonymized data will be stored on Google Drive (GDPR compliant) which is password protected and only accessible to the researcher.

How data will be destroyed

Participants' original data will be kept until the PhD process has been completed (thesis marked and verified). Anonymized data may be kept for up to five years after collection. This may be included in relevant papers written on the topic by the researcher for journals.

Maintaining anonymity

All names of participants, and other information given (such as any names of work placements) will be changed to maintain confidentiality. This is to minimize the risk of participants being identified, should the research be published in peer-reviewed journals. There is a small risk, however, that participants may be identified from the remaining data that is included within the study (this is a small risk but must be explained prior to individuals agreeing to participate). Before the focus group begins, I will list all participants on a sheet of paper. Each name will be given a number. During the data analysis, your number will be used to clarify who is speaking; names will not be used when transcribing the data.

Confidentiality; responsibilities of participants

To help maintain the anonymity of participants, those who agree to participate also agree not to disclose or discuss the research with others. In discussing the research, you may disclose information about another participant (even unknowingly). Therefore, upon agreeing to participate, you are also agreeing not to discuss the research process with other people.

Confidentiality; rights of participants

I have a responsibility to maintain confidentiality to protect the identities of participants. Therefore, I will keep all audio recordings (and discussions heard) confidential, and not disclose information to anyone* (other than my supervisory team). The data collected from you as participants will be anonymised and read only by my supervisors and myself. Participants can speak freely on the topic, without worrying that the information will be "fed back" to their employers. There will be no collaboration with settings; participants' views will be independent of the setting they are employed by. However, a description of the setting (for example, rural, town/ purpose built, pack away setting) may be used during the data analysis

Data collected from participants will be heard and read by only the researcher and the supervisory team. Once data has been anonymized (names and information changed), this data will be seen by those assessing

the PhD thesis, and potentially viewed as published reports or written pieces in peer reviewed journals (but data at this point will be anonymized).

*Please note: In a safeguarding situation, the researcher has a duty of care (under the "Working Together to Safeguard Children", 2018 and the Mental Capacity Act, 2005 legislation) to report any concern for the welfare of a child or vulnerable adult. Safeguarding protocols will be followed, including reporting the concern to the setting the child is placed in, or "Customer First".

Right to withdraw from the research

All participants have the right to change their mind, even after you have participated in the focus group. You may also decide you do not want to answer one (or more) of the questions asked during the focus group. You have the right to refuse to answer any question. You also have the right to withdraw completely from the research. This will have no consequences or negative effect. Please retain this information letter, as the email contact can be used to contact the researcher to withdraw your data from the study. At the start of the focus group, you will be given a number. Should you wish to withdraw, you must give this number, along with your setting name to the researcher, who can remove your data from the study. Please note, you can withdraw your data for one month after the date of focus group (after this, your data may have been anonymized and transcribed making it difficult to identify from the data previously gathered from other participants).

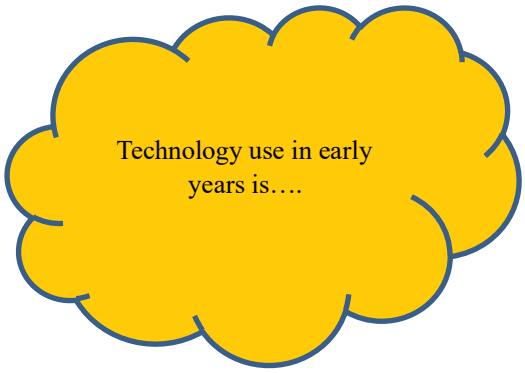
If you are happy with these guidelines, and would like to participate, please inform your manager who has details of the date and time of the focus group. If you have any questions about the nature of the study, or being a participant, please do not hesitate to contact me by email at: e.harvey@uos.ac.uk (this is also the email to use should you wish to withdraw from the researcher later on).

Thank you for your time.

Kindest regards, Emma Harvey

Word association activity 1

Word association activity 2



Word association activity 3


My experiences of technology in my role as an EYP are…..

University of Suffolk
Waterfront Building, Neptune Quay, Ipswich IP4 1QJ
+44 (0)1473 338 000 info@uos.ac.uk
uos.ac.uk

Project Lead: Emma Harvey

18 November 2019

Subject: An investigation into practitioners' perspectives of Technology Enhanced Learning in early years settings
Type of study: Postgraduate Research
Start Date: 9 December 2019
End Date: 30 March 2020
Primary Supervisor: Professor Emma Bond
Second Supervisor: Professor Andy Phippen

Dear Emma

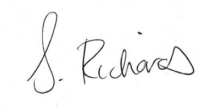
Thank you for re-submitting your application for ethical approval and taking action on the feedback points provided by the Committee on 26 September 2019.

As Deputy Chair of the University of Suffolk Research Ethics Committee, I have reviewed your application again, which was re-submitted on 14 November 2019 and am happy to approve this via Chair's action. This approval is based on all your action/s explained or completed.

As principal investigator, your responsibilities include:

- ✓ ensuring that (where applicable) all the necessary legal and regulatory requirements in order to conduct the research are met, and the necessary licenses and approvals have been obtained;
- ✓ reporting any ethics-related issues that occur during the course of the research or arising from the research to the University of Suffolk Research Ethics Committee to the Committee Secretary, Sue at s.raychaudhuri@uos.ac.uk (eg. unforeseen ethical issues, complaints about the conduct of the research, adverse reactions such as extreme distress);
- ✓ submitting details of proposed substantive amendments to the protocol/proposal to the University of Suffolk Research Ethics Committee for further approval.

Yours sincerely



Dr Sarah Richards
Deputy Chair of the University Research Ethics Committee
University of Suffolk

Appendix 3. University of Suffolk ethics committee application documents (wave 2; telephone interviews/ online questionnaires).

Application Form for Ethical Approval

Research Degree Students

Version 3 dated 26 June 2018

PLEASE NOTE:

The University of Suffolk Research Ethics Framework Document version 5 dated 31 October 2017 provides an ethical framework for staff and students conducting research at the University of Suffolk with humans and other animals. All those conducting research at the University of Suffolk should be familiar with this document.

Please submit your application as ONE document (for example PDF) and include version numbers and version dates in the footer of your documentation.

The Key Principles of Ethical Research are:

Principle 1

The emotional well-being, physical well-being, rights, dignity, and personal values of research participants should be secured.

Principle 2

Research participants and contributors should be fully informed regarding the purpose, methods, and end use of the research. They should be clear on what their participation involves and any risks that are associated with the process. These risks should be clearly articulated and if possible quantified.

Principle 3

Research participants must participate in a voluntary way, free from coercion. Participants have the right to withdraw at any time.

Principle 4

Research must be independent, and any conflicts of interest or partiality must be explicit.

Principle 5

Normally information provided by the participants should be anonymous. At all times confidentiality must be assured.

Applications (completed application form with supporting documentation) must be submitted to the University Research Ethics Committee in advance of the intended start date for data

collection. **If research is undertaken without approval, it will not be eligible for submission and could lead to disciplinary action.**

If you need Disclosure and Barring Service Checks (DBS), you must ensure that you apply for it sufficiently well in advance to when you plan to start research. Please contact Human Resources and inform them which category of check you require. If you are carrying out research abroad, you will need to obtain the equivalent of DBS clearance for that country, if required. For further information, please see the Home Office website.

Safeguarding

Safeguarding processes aim to protect children and/or adults at risk. Please refer to the University of Suffolk Safeguarding Policy:
https://mysuffolk.uos.ac.uk/system/files/safeguarding_policy_and_code_of_conduct.pdf

- Working Together to Safeguard Children (2018) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729914/Working_Together_to_Safeguard_Children-2018.pdf
- No Secrets: Guidance on developing policies and procedures to protect vulnerable adults from abuse (2000) http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/194272/No_secrets__guidance_on_developing_and_implementing_multi-agency_policies_and_procedures_to_protect_vulnerable_adults_from_abuse.pdf
- The Prevent duty guidance for Higher Education Institutions https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/445916/Prevent_Duty_Guidance_For_Higher_Education__England__Wales_.pdf

Research involving human tissue or samples

If your research involves human tissue or samples, you need to ensure that you are complying with the Human Tissue Act (2004).

Human Tissue Authority website https://www.hta.gov.uk/

Research involving people 16 years and over who do not have the capacity to consent

For research involving people over the age of 16 years who lack capacity to consent, you need to comply with the Mental Capacity Act (2005). University Research Ethics Committees are not authorised to review studies that fall under the Act. Research that falls under the Act can only be reviewed by the Health Research Authority and/or the local NHS Trust (where applicable).

Health Research Authority Strategy for Public Involvement

https://www.hra.nhs.uk/planning-and-improving-research/best-practice/involving-public/

Mental Capacity Act (2005) http://www.legislation.gov.uk/ukpga/2005/9/contents

Staff and Students working within the NHS should note that they may also need to apply for ethical approval through the Health Research Authority. Most research projects in the UK can make use of the coordinated NHS permission systems. These systems coordinate the handling of UK-wide studies and streamline the review process by conducting a single review

of all the aspects that are relevant to the whole project. Approval is required for all projectbased research in the NHS that is led from England. For detailed guidance, go to the Integrated Research Application System (IRAS) (https://www.myresearchproject.org.uk/help/hlphraapproval.aspx).

Health Research Authority website www.**hra**.nhs.uk/

Late Submissions

Please note that submissions that are received late will NOT be considered until the next meeting of the Panel, save in the most exceptional circumstances. Delay in starting research will not normally be accepted as an exceptional circumstance.

Amendments

If you need to make changes, please ensure you have permission before the primary data collection. If there are major changes, you may need to complete a new application for ethical approval. If there are minor changes then fill in the Changes to Ethics Approval Permission Form on MySuffolk and return this to the Committee for approval before the primary data collection begins.

Risk Assessment

When relevant, a Risk Assessment must be undertaken, and particular attention must be given to the researcher's own health and safety as well as issues of communication and security.

Data Protection

If you are collecting and/or processing data relating to living EU citizens, then you are required to comply with the EU General Data Protection Regulation (GDPR) and the Data Protection Act 1998.

http://eur-lex.europa.eu/eli/dir/2016/680/oj/eng

https://gdpr-info.eu

https://www.eugdpr.org/the-regulation.html

In summary, you are agreeing that you will adhere to the following criteria:

- To minimise the amount of personal and sensitive personal data stored in terms of quantity of information, length of time stored, number of individuals with access, and nature of processing:
    - Personal data is defined as anything used to directly or indirectly identify the person. This includes but is not limited to a name, a photo, an email address,

bank details, posts on social networking websites, medical information, or a computer IP address.
    - Sensitive personal data includes racial or ethnic origin, political opinion, religion or beliefs, trade union membership, genetic or health status, biometric data, or sexual orientation.
- To ensure participants are made aware of the purposes for which data is collected, who will store the data, who will process the data, and how it will be used. This should be made explicit in your Participant Information and Consent Sheet forms.
- To ensure that all data stored on home and mobile devices, including (but not limited to): mobile phones, desktops, laptops, tablets, portable hard drives, cds/dvds, and USBs is strongly password protected and encrypted.
- To ensure that any cloud storage used for the data is secure and the cloud servers are based in the UK or EU.
- To ensure that all transfers of data are undertaken in a secure fashion – uploaded and downloaded to password-protected cloud storage using secure protocols (https, sftp, etc), and secured files (i.e., password-protected with passwords sent by separate email).
- To ensure all non-electronic data (e.g., paper documents) and insecure media (e.g., audio cassettes) are stored in a locked cupboard.
- To wherever possible pseudonymise and/or anonymise data such that it is non-trivial for you or third parties, potentially using additional data points, to recover the identities of the participants. Where data has been pseudonymised, to ensure that the key mappings of real identities to pseudonymised codes are securely stored.
- To use pseudonymised and/or anonymised datasets to fulfil the stated research purposes, and only to use pseudonymised and/or anonymised datasets for processing to fulfil additional related research purposes that emerge after the data collection has been completed.
- Where storage, processing or analysis of data is delegated to other individuals or organisations, to only delegate storage, processing or analysis to GDPR-compliant individuals and organisations.
- To report immediately any security breach (e.g. accidental password reveal, suspected or actual hacking attempt, misdirected email communication, etc.) or loss or theft of data (e.g. through loss or theft of portable devices or media) to the Data Protection Officer (Fiona Fisk - dataprotection@uos.ac.uk) for the University of Suffolk and your primary supervisor (if you are a PhD student).
- To ensure the secure disposal of raw datasets when no longer required for the authorised research purpose.
- To ensure the secure disposal of pseudonymised datasets when no longer required for any authorised research.

I am carrying this project out as: (Tick as many as needed)	
PhD research project	☒
Externally Funded project (state funding body)	☐
Other (please describe)	☐

ETHICS APPROVAL APPLICATION FORM

Please give an answer to **ALL** questions. Failure to do so will result in automatic voidance of application. You may use the term 'not applicable' where necessary. Please consult the University of Suffolk Student Guide to the Ethics Approval Process, available on the MySuffolk for guidance on completing this form.

PhD Student details:	
Name(s):	**Emma Harvey**
Primary Supervisor	**Emma Bond**
Second Supervisor	**Andy Phippen**
Registered with UEA or Essex?	**UEA**
Internal Assessor at UEA	**Harry Dyer**
University of Suffolk School/Institute:	**Education**
University of Suffolk email address:	**e.harvey@ucs.ac.uk**
Date of Progression Board	**21.5.2020**
What sessions have you attended from the Suffolk Doctoral Training Programme?	**Advanced literature searching, Refworks, Brightspace, Using social media for research and professional networking, plagiarism, Ethical principles workshop,**
Training sessions completed on UEA doctoral programme:	**GDPR online training, ethics online training, Freedom of information online training, Ethical training workshop (UoS)**

Section 1: RESEARCHER AND PROJECT DETAILS

SECTION 2

Project	
Project Title:	An investigation into perspectives of Technology Enhanced Learning in early years settings
Data collection start date: *(Note **must** be prospective)*	02/12/2019
Expected project completion date:	31/03/2021 Due to current circumstances data collection will take longer than originally planned
Does your study entail collaboration with other Researchers/Organisations? *No*	
If the research is collaborative, has a framework been devised to ensure that all collaborators are given appropriate recognition in any outputs? *N/A*	

Summary of main issues (if applicable) PLEASE NOTE; MY APPENDICES BEGIN ONPAGE 19

Please summarise the main ethical, legal, or management issues arising from your study and say how you have addressed them:

This application is for the second part of a multi-layer research project. The first "wave" of data collection involved online surveys completed in January 2019. From the data collected in wave 1, some interesting themes emerged which I would like to investigate further with telephone interviews with early years practitioners to discuss topics around the use of technology with children in a learning capacity. The interviews will collect data on the views of practitioners, their levels of confidence in working with technology, and whether they feel their early years training prepared them for this. These are the areas of significant interest from the online surveys.

This application is to collect data from setting practitioners through the following methods:

Telephone interviews. I intend to ask practitioners to hold a telephone conversation with me regarding the use of technology at their setting

Main ethical considerations to address when working with people (adults).

1. Ethical conduct by the researcher. Addressed by research and training on ethical research techniques, strategies, and practices to ensure high standards of integrity, transparency, and respect. Considered ethical standards from NSPCC, BERA, UNICEF and ERIC, along with the study of UoS and UEA ethical conduct in research guidance. Approval sought from UoS ethical committee before commencing research. Ensure participants are aware of the UoS ethical committee agreement that the research plan has been approved before the commencement of data collection.

2. Informed consent: In accordance with Data Protection Principle 2 (ITGovernance.eu, 2019), Permission will be sought prior to any data being collected. The briefing sheets (supplied) will give clear guidelines as to the purpose of the research, and that data will be used for this purpose only. Briefing sheets will be emailed to the participants after they have agreed to take part to outline the ethical considerations, their rights, and responsibilities.

3. Power relationship: Participants must be clear on the nature and intention of the research and agree to participate for genuine reasons of being part of improving the provision for settings. To ensure this is the case, the intentions and potential risks and benefits of the research must be clearly given as part of the introduction brief.

4. Degree of participation: Participants may give consent to participate, however, once they are asked

   questions during the interview, they may not want to answer 1 or more questions (although they may agree to answer some). This must be clearly explained in the information prior to consent; participants have the right to refuse to answer part or all questions, and this will not affect their participation.

5. Conflict of interest to participation (settings): By using settings that are known to the researcher through her professional "day job", will the setting practitioners feel obliged to respond in a certain way? To address this issue, the researcher will make clear this research is completely independent of the researcher's role as a tutor and assessor of student early years practitioners and has no bearing on their training or practice. There will be no consequence in terms of receiving or not receiving student EYPs in the future because of taking part (or refusing to take part) in this study. The researcher will also ask questions in an open manner so as not to "guide" participants to answer in a certain manner (please see appendix 1A for a copy of the focus group questions).

6. Conflict of interest for practitioners: Individuals may be concerned that if they speak freely about their views on the provision and training around technology-enhanced learning, that their views may negatively affect their career within their setting. This will be managed by ensuring individuals that their data will be anonymized as much as possible during forum participation and interviews, and data will not be shared with individual setting managers or owners as a matter of "debriefing". All settings will be welcome to view the study as a completed thesis, should they wish, but the individual employees' "input" to the study will not be disclosed to employers. For those participating in the focus group, only their initial will be shown, and data will be anonymized during data analysis.

Ensuring participants understand that main aspects of the research; how and why they have been selected and asked to participate; the purpose and aim of the research; how this research may benefit a group of society (namely, preschool children, their families, and potentially society as a whole), and any potential risks to participation; what the commitment from them will involve; how data will be collected, stored, utilized and destroyed once the research is complete (under GDPR 2018 principle 5 guidelines) (itgovernance.eu, 2019); who will have access to the their data at each point of the process and afterwards; what data will be collected and the purpose for the collection of this data. These aspects will be explained to adults in the

form of a briefing sheet that will be emailed to participants before the interview is arranged. There must be enough time for the participants to consider these issues and agree to participate.

7. Ensuring inclusion and equality of access. This consideration is essential when considering practitioners who may not use English as their first language, and find speaking, reading, and writing in English difficult. If this presents a barrier to participation in the interview collection, methods to interpret will be sought, such as software to translate, or questions being translated into another language. For those who do not read or write, the main aspects of the research relevant to participants being able to give informed consent would be explained verbally, and a method of consent used which is "non-written", for example, a tick or other symbol against their name; questions can then be read to the participant (by the researcher). For participants with special educational needs, additional needs or disability, the researcher will assess the needs of the individual, and the methods to overcome any barrier to understanding the aims and objectives of the research, being informed of the research, and giving informed consent. As there are too many individual needs to list, the researcher will have to assess individual needs on an individual basis and devise a plan accommodate these needs.

8. Ensuring participants' anonymity. All participants will be given pseudonyms to ensure real names and company organisations are not revealed. Broad geographical locations may be used within the presentation of data, as this may have relevance to the findings (and the relevance of this data will be explained to participants to validate its inclusion). Interview participants will be made aware that their names will not be used, and as much identifying data as possible will be changed, however, it will be made clear in the briefing information, that although anonymity will be upheld as much as possible, there is always the risk that an individual may be able to identify a person or organization from the data given (data linkage). It is hoped participants will understand the researcher will take every precaution to minimise the risk of this occurring. Participants will be made aware that the only individuals to see the initial data will be the researcher and possibly the PhD supervisors; anonymized data may be seen by the researcher, PhD supervisors and assessors, and the anonymized data will be kept for 5 years after the completion of the PhD thesis, as there may be potential to publish in peer reviewed journals (this also means their (anonymised) data will at this point viewed by many academics reading these journals). Data will be coded and analysed by the researcher herself (no administration or secretarial assistance will be employed).

9. Ensuring participants' confidentiality: Participants will be made aware of the importance of their confidentiality in this project. To protect settings and individuals' reputations and privacy, participants will be aware that as part of their informed consent orally at the beginning of the interview, they are agreeing to refrain from discussing any aspect of the research with others outside of the setting.

10. Researcher confidentiality: Participants will be made aware of the researcher's duty to maintain confidentiality to details of the research and it's participants (except in the circumstances surrounding a safeguarding concern, in which case the researcher has a duty of care under "Working Together to Safeguard Children", 2018 Legislation (Gov.UK, 2019) to report these concerns to the setting (should

the concern be about a child or employee), or to "Customer First" should the concern be about the welfare of an adult.

11. Ensuring the wellbeing of participants. Participants are a valuable and essential asset to the study; without participants, the research cannot take place. Therefore, participants' wellbeing is paramount.

    Consideration for participants wellbeing includes the day and time chosen (but the participant) to make the interviews as convenient to the participant as possible. If wellbeing or safeguarding becomes a concern during an activity of discussion, the participant will be given the opportunity to stop the interview. At the first opportunity, I as the primary researcher will speak to the participant to find out if there is anything I can do to increase their wellbeing or if there is a concern that requires safeguarding protocol. Should safeguarding protocol be required, I will follow the setting's safeguarding/ whistleblowing protocol, or contact LADO.

    For participants who have mental health or disability needs. The researcher will have a conversation with the participants to find out if there is anything I can do to make their participation easier. For example, if the participant has anxiety issues, I will ensure they have a copy of the interview topics in good time before the so they are prepared for the topics to be discussed to reduce levels of anxiety over unknown conversation. I will also ensure they are aware that they can stop the conversation at any time without negative consequence. Each individual need will be considered and supported, depending on the need.

12. Safeguarding protocols: The researcher has a full-enhanced DBS with update service, and safeguarding tra updated in September 2018. The researcher is also experienced in working in early years settings; include the briefing information. There is a risk a participant may disclose (or the researcher may notice) a cause f concern surrounding the wellbeing of the participant. Should this occur, the researcher must be aware of contact details for Customer First. A clear, factual, report style record of the disclosure will be written by the researcher, and actions taken (i.e support signposting, Customer F contacted for advice) will be recorded. These safeguarding protocols will be clearly stated on the front the information pages, and the participants made aware of these before agreeing to participation.

13. Ensuring participants have information on how to withdraw their data from the study, and the cut point; a month after data is collected) for their withdrawal of data (also why there has to be a cut point). This will included in the information presented prior to agreement to participate.

14. Storage of data:

    A) Audio recordings; will be kept on a secure cloud storage (Google Drive). Audio versions will be stored u end of the PhD process, then deleted from the cloud.

How will potential participants, records or samples be identified? Who will carry this out and what resources will be used?

The researcher will identify participants using the methods outlined below.
Early years staff will be selected through random opportunity sampling. Settings will be contacted via email. I will contact those I know in the early years industry and ask them if they would be willing to participate. This initial contact will be via email. For those who agree, the briefing sheet will be emailed, and once the participant has been given time to read the sheet, they can then email to arrange a telephone interview date (at this point they will be giving me a telephone number to call them on). Once the interview has been completed, I will ask these participants if they know any of their colleagues who may be willing to participate (moving to a snowball sampling technique). The process will then be repeated (the original participant contacting their colleague and giving them my email address; If they are willing to participate, they can then contact me).

Research Participants	
Children and young people (under 18 years old)	☐
Adults (over 18 years old and competent to give consent)	☒
Carers	☐
Parental or Guardian Consent	☐
Suffering a physical vulnerability (this is not an intentional group, but may be within the sample)	☒
Suffering a psychological disorder (this is not an intentional group, but may be within the sample)	☒
Dependent relationships with the researcher	☐
People from non-English speaking backgrounds (this is not an intentional group, but may be within the sample)	☒
Adults or youth offenders detained at Her Majesty's convenience	☐
Adults (over 18 years old with learning disabilities, mental health difficulties, confusion, dementia physical illness and other impairment preventing informed consent) (this is not an intentional group, but may be within the sample)	☒
Vulnerable Children and young people (under 18 years old) with learning difficulties, mental health difficulties, confusion, and other impairment preventing informed consent	☐
None of the above	☐
Please state the number of participants	30 (est)

4.

How does your study include involvement with members of the public? *Include the numbers involved and information about what the members of public involved will do to support the conduct and management of the study as well as the dissemination of its findings.*
Participants are members of the public (albeit employed as early years practitioners) est. number of participants 30.

5.

Give details of all procedure(s) that will be received by participants as part of the study.	
Interviews	x☐
Focus Groups	
Questionnaires	☐
Action Research	☐
Audio-taping interviewees or events	☐
On-line searches	☐
Performance measurement	☐
Physiological measurement	☐
Laboratory based experiment (please provide details)	☐
Physiological self-assessment (please provide details)	☐
Psychological self-assessment (please provide details)	☐
Psychological experimentation (please provide details)	☐
Animal feeding/Therapeutic trials (please provide details)	☐
Adding to or changing an aspect of an animal's environment (including enforcing physical exercise) (please provide details)	☐
Animal Breeding projects (please provide details)	☐
Other (please specific in the box below)	☐

6.

How long do you expect each participant to be in the study in total?
Interviews will last for approximately 30 minutes. The researcher will endeavour to conduct the interviews promptly after the participants agree to take part; However, due to arranging a suitable and convenient time, it may take up to 4 weeks to arrange an interview.

7.

As a Researcher do you have any relationship with the participants such as a friend, colleague, client, student and/or patient?
I may have a working relationship with some of the participants (some may be known to me through my day job, as I visit early years settings to assess college students in placements at Suffolk settings). The relationship I have with the providers is a distant working relationship. Settings I work with will have the opportunity to accept (or not answer) invitation to participate.

8.

What are the potential risks and burdens for research participants and how will you minimise them?
For all studies, describe any potential adverse effects discomfort, distress, intrusion, inconvenience, or changes to lifestyle. Only describe risks or burdens that could occur as a result of participation in the research. State what steps would be taken to minimise risks and burdens as far as possible. ● *Time constraints: practitioners are very busy and are counted in staff ratios or the designated safeguarding lead for their setting, so are not able to leave their premises during working hours. Therefore, interviews will need to be conducted at their place of work, out of hours.* ● *Risk of anonymity of individual or setting breach: As previously mentioned, as far as possible, the names and details of individuals and settings will be changed to minimise the risk of anonymity breaches. However, it may still be possible to place an individual or setting within the data (data linkage), should a reader have background knowledge on participants. Therefore, this risk will be disclosed at the time of consent.*

9.

Will you record informed consent in writing? If not, how will consent be obtained?
No. Due to the current situation of COVID19 lockdown, written consent is not possible. Participants will be asked at the start of the interview (during audio recording) to state their name, the date, their pseudonym (number) and that they have received the briefing sheets which outlines their rights and responsibilities as a

participant, and they give consent to be interviewed, and recorded (audio), and their data can be used in the study.

10.

What are the potential risks for the researchers themselves? (If any)
Risk that a safeguarding disclosure may be made to the researcher during an interview. To manage this risk, the researcher will be fully aware of the safeguarding protocols (in accordance with "Working Together to Safeguard Children" (2018).

11.

Will you be using somebody else to transcribe or analyse the raw data?
No
If yes, you need to ensure that they are GDPR compliant.

12.

Who will have access to participants' personal data during the study?
Researcher, supervisors

13.

Do you intend to keep raw data after the completion of your studies? If yes, for how long and how will it be stored?
Anonymised data will be kept for up to 5 years (to be used only for publishing for peer reviewed journals). Pre anonymization process data will be destroyed after completion of the PhD process

14.

Do you or any other investigator/collaborator have any direct personal involvement (e.g., financial, personal relationship etc.) in the organisations sponsoring or funding the research that may give rise to a possible conflict of interest?
No

15.

How do you intend to report and disseminate the results of the study?	
Peer reviewed scientific journals	☒
Internal report	x
Conference presentation	x☐
Publication on website	x☐
Other publication	x☐
Submission to regulatory authorities	☐
Thesis	☒
Other (please specify) Click here to enter text.	

16.

Will you inform participants of the findings?	
Yes	☒
No	☐
Please give details of how you will inform participants or justify if not doing so If participants wish to be informed of the findings, they will be emailed a summary of the thesis (which will contain data from many participants). Individuals data will not be shared with participants.	

Please provide all the relevant supporting documentation (Project Proposal, Participant Information Form, Participant Consent Form, Invitation Letters, Interview schedule, questionnaires, etc.) related to your application to ethics.

Please include version numbers and dates in the footer of your supporting documentation. Version numbers and dates will help the University Research Ethics Committee identify original and updated documents.

References:

Itgovernance.eu (2019) *The GDPR: Understanding the 6 data protection principles* [Online]. Available at: https://www.itgovernance.eu/blog/en/the-gdpr-understanding-the-6-dataprotection-principles-2 [Accessed 25th January 2019].

Working Together to Safeguard Children (2018) *Working Together to Safeguard Children A guide to inter- agency working to safeguard and promote the welfare of children* [Online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729914/Working_Together_to_Safeguard_Children-2018.pdf [Accessed 25th January2019].

Section 3: Declaration

Student Declaration

By sending this form from my University of Suffolk e-mail account I confirm that I will undertake this project as detailed above.

I understand that I must abide by the terms of this approval and that I may not substantially amend the project without further approval.

Student signature: E. Harvey Date: 28.5.2020

Primary Supervisor signature: Date:

Second Supervisor signature: Date:

University Research Ethics Committee Panel outcome

X ☐	*Approved*
☐	*Approved with Recommendations (see comments section)*
☐	*Approved with Conditions (see comments section)*
☐	*Not Approved (see comments section)*

Online questions on security-sensitive material

Does your research fit into any of the following security-sensitive categories? If so, indicate which:

a. Commissioned by the military:

Yes ☐ No ☒

b. Commissioned under an EU security call:

Yes ☐ No ☒

c. Involve the acquisition of security clearances:

Yes ☐ No ☒

d. Concerns terrorist or extreme groups:

Yes ☐ No ☒

If your answer to question 1d is yes, continue to the questions in Appendix 2.

The Terrorism Act (2006) outlaws the dissemination of records, statements and other documents that can be interpreted as promoting or endorsing terrorist acts.

1. Does your research involve the storage on a computer of any such records, statements, or other documents?

Yes ☐ No ☒

2. Might your research involve the electronic transmission (e.g., as an email attachment) of such records or statements?

Yes ☐ No ☒

3. If you answered 'Yes' to questions 1 or 2, you are advised to store the relevant records or statements electronically on a secure university file store. The same applies to paper documents with

the same sort of content. These should be scanned and uploaded. Access to this file store will be protected by a password unique to you.

You agree to store all documents relevant to questions 1 and 2 on that file store: Yes

☐

3a. You agree not to transmit electronically to any third- party documents in the document store: Yes

☐

4. Will your research involve visits to websites that might be associated with extreme, or terrorist, organisations?

Yes ☐ No ☒

5. If you answer 'Yes' to question 4, you are advised that such sites may be subject to surveillance by the police. Accessing those sites from University IP addresses might lead to police enquiries.

Please acknowledge that you understand this risk by putting an 'X' in the 'Yes' box. Yes

☐

You will find a form for 'reporting security sensitive research projects' on MySuffolk: https://mysuffolk.uos.ac.uk/research-ethics

6. By submitting to the ethics process, you accept that the Research Development Manager will have access to a list of titles of documents (but not the contents of documents).

Please acknowledge that you accept this by putting an 'X' in the 'Yes' box.

Yes ☒

Countersigned by the PhD supervisor:

Participant Information Example of a Template

You will need a version of this document for each participant group

Study Title:

Main Investigator:

Academic Supervisor (for Student research):

This template is to assist students and staff in the development of a 'Participant Information and Informed Consent Form'. It is important that you adapt this template to suit the audience and nature of your study.

Example

You are invited to take part in a study on […].

This Participant Information Sheet will help you decide if you would like to take part. It sets out why we are doing the study, what your participation would involve, what the benefits and risks to you might be, and what would happen after the study ends. We will go through this information with you and answer any questions you may have. You do not have to decide today whether or not you will participate in this study. If you agree to take part in this study, you will be asked to sign the Informed Consent Form. You will be given a copy of both the Participant Information Sheet and the Informed Consent Form to keep.
Please make sure you have read and understood all the pages of the Participant Information Form.

1. What is the purpose of the study?
2. What will my participation in the study involve?
3. What are the possible benefits and risks of this study?
4. Who pays for this study?
5. What if I feel uncomfortable with an aspect of the study?
6. What if I don't want to answer a question being asked of me?

7. What are my rights?
8. What happens if I change my mind?
9. What happens after the study?
10. Who do I contact for more information if I have concerns?
11. How will my data be stored and for how long?
12. How will my data be destroyed?

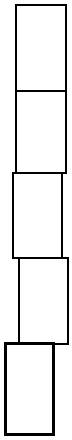
Please refer to the 'Participant Information Sheet and Informed Consent' - Guidance document version 2 dated 28 February 2018.

Informed Consent Form Example of a Template

The University of Suffolk expects all research to be carried out in accordance with the following principles:

- The emotional well-being, physical well-being, rights, dignity, and personal values of research participants should be secured.
- Research participants and contributors should be fully informed regarding the purpose, methods, and end use of the research. They should be clear on what their participation involves and any risks that are associated with the process. These risks should be clearly articulated and if possible quantified.
- Research participants must participate in a voluntary way, free from coercion. Participants have the right to withdraw at any time.

This research has been approved by the University of Suffolk Ethics Panel. Should you have any concerns about the Ethics of this research, please feel free to contact the Chair of the Ethics Panel, Professor Emma Bond e.bond@uos.ac.uk (01473 338564) or the Research Development Manager, Andreea Tocca a.tocca@uos.ac.uk (01473 338656).

Study Title: Main Investigator: Academic Supervisor (for Student Research): Please initial the boxes below.	
I confirm that I have read and understand the information sheet/letter (delete as applicable) dated *[insert date]* explaining the above research project and I have had the opportunity to ask questions about the project. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. I understand that my responses will be anonymised and any personal or identifying information removed from published materials I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research. I understand that the data I provide will be used solely for the purposes of the research study outlined and will not be used for any other purpose. I also understand how long my data will be stored for.	

I agree to take part in the above research project.	☐

_____ _____ _____

Name of Participant Date Signature

(*Or legal representative*)

_____ _____ _____

Name of person taking consent* Date Signature

(**if different from lead researcher*)

To be signed and dated in presence of the participant

_____ _____ _____

Researcher* Date Signature

To be signed and dated in presence of the participant

**Delete as appropriate*

Copies:

Once this form has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, the letter/information sheet and any other written information provided to the participants.

A scanned copy of the signed and dated consent form should be placed in the project's main record by the student/researcher/PI. This must be kept in a secure location.

Briefing sheet for interviews

University of Suffolk, Waterfront Building, 19 Neptune Quay, Ipswich IP4 1QJ e.harvey@uos.ac.uk

Study title: An investigation into perspectives of technology enhanced learning in early years settings.

Main investigator: Emma Harvey

Academic supervisors: Professor Emma Bond; Professor Andy Phippen Date:

Dear Recipient Name:

My name is Emma Harvey, and I am a post graduate research student at the University of Suffolk, undertaking a PhD research project to explore the views of early years practitioners on the use of technology in early years settings.

As a student at the University of Suffolk, I have undertaken training on conducting research in an ethical manner, and I am guided by a supervisory team, and the ethics committee of the University. Both parties have examined the proposed research, to ensure participants are protected as far as can possibly be envisaged. Every effort has been made to ensure participants can speak freely on the topic. If you have any concerns about the ethics of this research, please feel free to contact Research Development Manager Andreea Tocca a.tocca@uos.ac.uk (01473 338656).

I would like to ask if you would agree to taking part in a telephone interview to talk about your thoughts, views, and feelings about using technology within the setting, for educational activities with the children, and how you use technology to observe, record, monitor and track children's progress.

For those who agree to take part in the research, this brief sets out the aims of the research, what "being a participant" means for you, and how your data will be used. It also explains your rights as a participant.

The main aim of the research is to explore:

- What early years practitioners' views are on the use of technology in settings.
- Whether they feel confident in the use of technology.
- How they feel their early years training helped them to prepare for the use of technology with children.
- Whether they have had any post qualifying training or CPD on the use of technology both with the children, and for observing and tracking children's achievements and progress.
- Their views on the amount of inclusion of technology within the EYFS framework, and
- If they feel technology use in early years settings has positive or negative effects on the overall provision of early years care and education.

It is hoped this research will give a "voice" to practitioners, who may want to share their opinions on this topic.

All practitioners are welcome to participate, regardless of their employment status or length of time as a practitioner. Those who may have additional language, learning of physical needs are also very welcome to participate; If you require additional support, have particular environmental needs or support to communicate during the focus group, please advise the researcher.

If you agree to participate:

Your wellbeing

Your wellbeing as a participant is of utmost importance; ensuring you are both physically and mentally comfortable with participating in the study is the main priority of the researcher. Therefore, the telephone interview will be carried out at times/ days which best suit you. Comfort breaks will also be guided by you. ~~As I will be visiting your setting, I can supply my Enhanced DBS update number, should you wish to record this for safeguarding protocols. I have updated safeguarding training (September 2018), and experience in working in settings.~~

Your rights, dignity and personal values are paramount; individuals participating in the research will have their views heard in a safe, nonjudgmental manner. The views of all participants will be valued, and all participant views will be entered into the dataset. Part of the ethical considerations undertaken as part of the planning process was to ensure that I collect data in an unbiased way, without projected outcomes or a "preconceived idea" of how participants will contribute to the focus group topics. This research is an independent study, with no motive, other than to *explore the views* of practitioners on the topic of technology in settings; therefore, all views will be collected, and used within the study.

The commitment from you

The commitment would involve being part of a telephone conversation with the researcher (myself) for between 25- 30 minutes. Participation would involve an informal discussion and agreeing to have this discussion audio recorded so I can ensure I do not miss any vital information the practitioners tell me. There is no financial reward for taking part. Once the interview has been completed, there is no further commitment. There is also no consequence for deciding not to take part; you are under no obligation to partake. How data will be collected

With your permission, data (the interview discussions) will be captured through recording of voices (myself and you). There will be no video recording, ~~and only those involved in the focus group will be in the room~~. The questions are related only to your views and experiences of working in settings using technology.

The audio equipment used to record the interviews will be a mobile phone (no video recording). This is for participants peace of mind, and to maintain safeguarding protocols.

How data will be stored

The storage, use and deletion of data has been carefully considered in accordance with the General Data Protection Regulations (2018). The audio recordings will be transcribed into "data" and the original interviews stored until the PhD study is complete, and then deleted.

Should a data breach occur (data stored on the cloud system), I will contact the University data protection officer and my primary supervisor immediately, in accordance with the Post Graduate Researcher policy.

How data will be used

The answers and comments made to the interview questions will be transcribed into "data" (at this point your data will be anonymized). This anonymized data will be coded using software which will search for themes "thematic analysis". The data will be used within the PhD thesis, and potentially articles or pieces for peer reviewed academic journals. It is important participants are aware that in agreeing to take part in the study, they are also agreeing to their interview answers being used not only for the purpose of the PhD thesis, but potentially in subsequent pieces for academic journals. The data will be used by myself, no other students, academics, or writers will have access or permission to use the answers you provide.

The anonymized data will be stored on Google Drive (GDPR compliant) which is password protected and only accessible to the researcher.

How data will be destroyed

Participants original data will be kept until the PhD process has been completed (thesis marked and verified). Anonymized data may be kept for up to five years after collection. This may be included in relevant papers written on the topic by the researcher for journals.

Maintaining anonymity

All names of participants, and other information given (such as any names of work placements) will be changed to maintain confidentiality. This is to minimize the risk of participants being identified, should the research be published in peer reviewed journals. There is a small risk however, that participants may be identified from the remaining data which is included within the study (this is a small risk but must be explained prior to individuals agreeing to participate). Before the interview begins, I will give participants a number. During the data analysis, your number will be used to clarify who is speaking, names will not be used when transcribing the data. Should you wish to withdraw your data from the study, you can contact me, quoting your participation number, and your data can be removed from the study.

Confidentiality; responsibilities of participants

To help maintain the anonymity of participants, those who agree to participate also agree not to disclose or discuss the research with others. In discussing the research, you may disclose information about another participant (even unknowingly). Therefore, upon agreeing to participate, you are also agreeing not to discuss the research process with other people.

Confidentiality; rights of participants

I have a responsibility to maintain confidentiality to protect the identities of participants. Therefore, I will keep all audio recordings (and discussions heard) confidential, and not disclose information to anyone* (other than my supervisory team). Participants can speak freely on the topic, without worrying that the information will be "fed back" to their employers. There will be no collaboration with settings; participants views will be independent of the setting they are employed by. However, a description of the setting (for example, rural, town/ purpose built, pack away setting) may be used during the data analysis

Data collected from participants will be heard and read by only the researcher and the supervisory team. Once data has been anonymized (names and information changed), this data will be seen by those assessing the PhD thesis, and potentially viewed as published reports or written pieces in peer reviewed journals (but data at this point will be anonymized).

*Please note: In a safeguarding situation, the researcher has a duty of care (under the "Working Together to Safeguard Children", 2018 and the Mental Capacity Act, 2005 legislation) to report any concern for the welfare of a child or vulnerable adult. Safeguarding protocols will be followed, including reporting the concern to the setting the child is placed in, or "Customer First".

Right to withdraw from the research

All participants have the right to change their mind, even after you have participated in the interview. You may also decide you do not want to answer one (or more) of the questions asked during the interview. You have the right to refuse to answer any question. You also have the right to withdraw completely from the research. This will have no consequences or negative effect. Please retain this information letter, as the email contact can be used to contact the researcher to withdraw your data from the study. At the start of the interview, you will be given a number. Should you wish to withdraw, you must give this number to the researcher, who can remove your data from the study. Please note, you can withdraw your data for one month after the date of the interview (after this, your data may have been anonymized and transcribed making it difficult to identify from the data previously gathered from other participants).

If you are happy with these guidelines, and would like to participate, please respond by emailing me at e.harvey@uos.ac.uk. If you have any questions about the nature of the study, or being a participant, please do not hesitate to contact me by email at: e.harvey@uos.ac.uk (this is also the email to use should you wish to withdraw from the researcher later on).

Thank you for your time.

Kindest regards, Emma Harvey

Telephone interview questions

(Audio recorded); *State date, time of interview. State pseudonym of participant*

- Thank you for agreeing to participate in this research. Can you confirm have received, read, and understood the briefing sheet which sets out your rights as a participant.
- Please state you are agreeing to participate, have your voice recorded and you understand you have the right to withdraw your consent up until the date of *(one month after today's date) *

Practitioner interview questions…

1. Is the location of your current setting a village/ rural or town location?
2. Can you tell me what the age range of children is you care for?
3. And does your organisation run as a charity/ independent or private provider?
4. Is your building sole use or do you share the building (i.e "pack away")?
5. And do you have internet access at your setting?

6. Can you tell me what qualifications you hold?
7. When did you achieve these qualifications?
8. Tell me about your training/ course- what do you remember about your lectures/ assessments around working with STEM…
9. Since qualifying, have you had any CPD or in-house workshops about technology enhanced learning for early years?
10. Would you mind disclosing your age?

11. Tell me about your views on technology within early years
12. Tell me about your current setting's provision for technology (think about your continuous provision, and planned activities) …
13. Tell me about the "technology" resources and equipment your setting has, to support learning and development
14. Do you notice a difference in how technology is used with different age ranges? Tell me about this….
15. If you have worked in previous settings, what are your previous experiences of STEM in early years?
16. Would you consider yourself confident in working with technology with the children? Tell me about your thoughts on this…
17. The current EYFS includes the use of technology as part of the area of learning and development: "understanding the world"; What are your views on this?
18. You are probably aware that this academic year, an updated EYFS is being trialled in some settings. This revised EYFS may be implemented nationally next academic year; "technology" has been removed as an EYO/ ELG, and is not included in the framework at all; what are your thoughts on this?
19. How do you feel about preschool children's use of technology both inside and outside of your setting?
20. Would you say these views affect your practice, and the amount of technology you plan to use within your activities?
21. Are there any other contributing factors to the amount of time children use technology in your setting?

Thank you for your time

University of Suffolk

Waterfront Building,
Neptune Quay,
Ipswich IP4 1QJ

+44 (0)1473 338 000
info@uos.ac.uk
uos.ac.uk

@UOSuffolk
f/ UOS

4th April 2019

Project Lead: Emma Harvey
Subject: An investigation into perspectives of Technology Enhanced Learning in early years settings
Type of study: Postgraduate Research
Start Date: 10th February 2019
End Date: 31st October 2019
Primary Supervisor: Professor Emma Bond
Second Supervisor: Professor Andy Phippen

Dear Emma,

Following an email from your Primary Supervisor, Professor Emma Bond, I have reviewed your application to amend your method of data collection for the above PhD study and am happy to approve these changes via representative Chair's action.

Yours sincerely,

Sarah Richards

Dr Sarah Richards
Acting Chair of the University Research Ethics Committee
University of Suffolk

Appendix 4. Online survey consent page

Participants views on the use of technology in settings.

University of Suffolk, Waterfront Building, 19 Neptune Quay, Ipswich IP4 1QJ
e.harvey@uos.ac.uk

Study Title: An investigation into perspectives of technology enhanced learning in early years settings.
Main Investigator: Emma Harvey
Academic Supervisors: Professor Emma Bond; Professor Andy Phippen

My name is Emma Harvey; I am a PhD candidate at the University of Suffolk. As a student at the University, I have undertaken training on conducting research in an ethical manner, and I am guided by a supervisory team, and the ethics committee of the University. Both parties have examined the proposed research, to ensure participants are protected as far as can possibly be envisaged. Every effort has been made to ensure participants can speak freely on the topic. If you have any concerns about the ethics of this research, please feel free to contact Research Development Manager Andreea Tocca a.tocca@uos.ac.uk (01473 338656).
I would like to ask if you would agree to taking part in a survey about your thoughts, views and feelings about using technology within the setting, for educational activities with the children, and how you use technology to observe, record, monitor and track children's progress.

The main aim of the research is to explore:

- What early years practitioners' views are on the use of technology in settings;
- Whether they feel confident in the use of technology;
- How they feel their early years training helped them to prepare for the use of technology with children;
- Whether they have had any post qualifying training or CPD on the use of technology both with the children, and for observing and tracking children's achievements and progress; ● Their views on the amount of inclusion of technology within the EYFS framework, and ● Their experiences on how COVID has changed the use of technology.

It is hoped this research will give a "voice" to practitioners, who may want to share their opinions on this topic.

The storage, use and deletion of data has been carefully considered in accordance with the General Data Protection Regulations (2018). Should a data breach occur (data stored on a password protected cloud system), I will contact the University data protection officer and my primary supervisor immediately, in accordance with the Post Graduate Researcher policy.

The data will be used within the PhD thesis, and potentially articles or pieces for peer reviewed academic journals. It is important participants are aware that in agreeing to take part in the study, they are also agreeing to their data being used not only for the purpose of the PhD thesis, but potentially in subsequent pieces for academic journals. The data will be used by myself, no other students, academics, or writers will have access or permission to use the answers you provide. Participants original data will be kept until the PhD process has been completed (thesis marked and verified). Anonymized data may be kept for up to five years after collection. This may be included in relevant papers written on the topic by the researcher for journals.

Any names will be changed to maintain confidentiality. This is to minimize the risk of participants being identified, should the research be published in peer reviewed journals. There is a small risk however, that participants may be identified from the remaining data which is included within the study (this is a small risk but must be explained prior to individuals agreeing to participate).

Data will be read by only the researcher and the supervisory team. Once data has been anonymized (names and information changed), this data will be seen by those assessing the PhD thesis, and potentially viewed as published reports or written pieces in peer reviewed journals (but data at this point will be anonymized).
*Please note: In a safeguarding situation, the researcher has a duty of care (under the "Working Together to Safeguard Children", 2018 and the Mental Capacity Act, 2005 legislation) to report any concern for the welfare of a child or vulnerable adult. Safeguarding protocols will be followed, including reporting the concern to "Customer First".

All participants have the right to change their mind, even after you have participated in the survey. This will have no consequences or negative effect. Please retain this information, as the email contact can be used to contact the researcher to withdraw your data from the study.

If you are happy with these guidelines, and would like to participate, please check the box below to continue.

Thank you for your time.

Kindest regards, Emma
Harvey

I have read and agree to the information above

☐ Agree

Appendix 5. Focus group paperwork and consent form.

BEGIN RECORDING ON DICTAPHONE

Before we begin the questions, I would like to thank everyone for agreeing to take part in the focus group. I would also like to have on record I have provided each of you as participants a briefing sheet which sets out your rights as a participant on topics such as how your data will be collected, stored, used, and deleted, how to withdraw your consent later, and that you are all happy with these. I would also like to remind you all that we are audio recording the focus group, and in participating in the focus group, you are giving your consent for your voices to be audio recorded. If there is anyone who does not consent to this, please feel free to leave now.

1. Tell me about how you use technology with the children in your setting…
2. What technology equipment do you have in your setting?
3. Do the children use these as adult led or child led?
4. Having carried out some research on practitioners' qualifications and CPD since qualifying, 80% of respondents felt their qualifications did not prepare them for working with technology with children, and very few had received any CPD on the use of technology since qualifying. Is this similar to your experiences of your training, and how do you feel about this?
5. Most of the respondents of my survey felt that despite having little or no training on using technology in their work role, they felt confident to use technology with the children. Is this true for you? and, where does your confidence come from if not from formal training?
6. Do you think there should be more/ less/ the same of focus on using technology with children, and using technology for tracking, observing etc within the early years practitioner and EYE qualifications?
7. What are your thoughts on whether training should change for new EYEs in relation to using technology in settings?
8. I'm sure you have read that there has been a new EYFS framework being trialled, which is due to be implemented from September 2020. This new framework does not include technology or ICT in any of the areas of learning and development, and subsequent early learning goals. What are your thoughts on this?
9. Will this affect how you use technology (if you do not have to prepare children for the UTW ELG which currently includes technology)?
10. How do you see your role when supporting children to use technology?

Appendix 6. Briefing sheets.

Briefing sheet for focus groups

University of Suffolk, Waterfront Building, 19 Neptune Quay, Ipswich IP4 1QJ e.harvey@uos.ac.uk

Study title: An investigation into perspectives of technology enhanced learning in early years settings.

Main investigator: Emma Harvey

Academic supervisors: Professor Emma Bond; Professor Andy Phippen Date:

Dear Recipient Name:

My name is Emma Harvey, and I am a post graduate research student at the University of Suffolk, undertaking a PhD research project to explore the views of early years practitioners on the use of technology in early years settings.

As a student at the University of Suffolk, I have undertaken training on conducting research in an ethical manner, and I am guided by a supervisory team, and the ethics committee of the University. Both parties have examined the proposed research, to ensure participants are protected as far as can possibly be envisaged. Every effort has been made to ensure participants can speak freely on the topic. If you have any concerns about the ethics of this research, please feel free to contact Research Development Manager Andreea Tocca a.tocca@uos.ac.uk (01473 338656).

I would like to ask if you would agree to taking part in a focus group with your team. During the group discussion we will talk about your thoughts, views, and feelings about using technology within the setting, for educational activities with the children, and how you use technology to observe, record, monitor and track children's progress.

For those who agree to take part in the research, this brief sets out the aims of the research, what "being a participant" means for you, and how your data will be used. It also explains your rights as a participant.

The main aim of the research is to explore:

- What early years practitioners' views are on the use of technology in settings.
- Whether they feel confident in the use of technology.
- How they feel their early years training helped them to prepare for the use of technology with children.

- Whether they have had any post qualifying training or CPD on the use of technology both with the children, and for observing and tracking children's achievements and progress.
- Their views on the amount of inclusion of technology within the EYFS framework, and
- If they feel technology use in early years settings has positive or negative effects on the overall provision of early years care and education.

It is hoped this research will give a "voice" to practitioners, who may want to share their opinions on this topic.

All practitioners are welcome to participate, regardless of their employment status or length of time as a practitioner. Those who may have additional language, learning of physical needs are also very welcome to participate; If you require additional support, have particular environmental needs or support to communicate during the focus group, please advise the researcher.

If you agree to participate:

Your wellbeing

Your wellbeing as a participant is of utmost importance; ensuring you are both physically and mentally comfortable with participating in the study is the main priority of the researcher. Therefore, the focus groups will be carried out at times, days and locations which best suit your team. Focus groups will be carried out at your place of work, so you are familiar with the facilities, and drinks and snacks will be provided. Comfort breaks will also be guided by you. As I will be visiting your setting, I can supply my Enhanced DBS update number, should you wish to record this for safeguarding protocols. I have updated safeguarding training (September 2018), and experience in working in settings.

Your rights, dignity and personal values are paramount; individuals participating in the research will have their views heard in a safe, nonjudgmental manner. The views of all participants will be valued, and all participant views will be entered into the dataset. Part of the ethical considerations undertaken as part of the planning process was to ensure that I collect data in an unbiased way, without projected outcomes or a "preconceived idea" of how participants will contribute to the focus group topics. This research is an independent study, with no motive, other than to *explore the views* of practitioners on the topic of technology in settings; therefore, all views will be collected, and used within the study.

The commitment from you

The commitment would involve being part of your team of colleagues who meet with the researcher (myself) for between 45 minutes to one hour. Participation would involve a group informal discussion and agreeing to have this discussion audio recorded so I can ensure I do not miss any vital information the practitioners tell me. There is no financial reward for taking part. Once the focus group has been completed, there is no further commitment. There is also no consequence for deciding not to take part; you are under no obligation to partake.

How data will be collected

With your permission, data (the focus group discussions) will be captured through recording of voices (myself and you). There will be no video recording, and only those involved in the focus group will be in the room. The questions are related only to your views and experiences of working in settings using technology.

The audio equipment used to record the interviews will be a Dictaphone (no video recording possible). This is for participants peace of mind, and to maintain safeguarding protocols.

How data will be stored

The storage, use and deletion of data has been carefully considered in accordance with the General Data Protection Regulations (2018). The audio recordings will be stored at the University of Suffolk within the post graduate research room in a locked cupboard. Data will be kept on USB storage. The interview recordings will be transcribed into "data" at the University site; once the Dictaphone reaches the university site, the recordings will not leave this location (they will be deleted on site).

Should a data breach occur (data stored on the cloud system), I will contact the University data protection officer and my primary supervisor immediately, in accordance with the Post Graduate Researcher policy.

How data will be used

The answers and comments made to the focus group questions will be transcribed into "data" (at this point your data will be anonymized). This anonymized data will be coded using software which will search for themes "thematic analysis". The data will be used within the PhD thesis, and potentially articles or pieces for peer reviewed academic journals. It is important participants are aware that in agreeing to take part in the study, they are also agreeing to their interview answers being used not only for the purpose of the PhD thesis, but potentially in subsequent pieces for academic journals. The data will be used by myself, no other students, academics, or writers will have access or permission to use the answers you provide.

The anonymized data will be stored on Google Drive (GDPR compliant) which is password protected and only accessible to the researcher.

How data will be destroyed

Participants original data will be kept until the PhD process has been completed (thesis marked and verified). Anonymized data may be kept for up to five years after collection. This may be included in relevant papers written on the topic by the researcher for journals.

Maintaining anonymity

All names of participants, and other information given (such as any names of work placements) will be changed to maintain confidentiality. This is to minimize the risk of participants being identified, should the research be published in peer reviewed journals. There is a small risk however, that participants may be identified from the remaining data which is included within the study (this is a small risk but must be explained prior to individuals agreeing to participate). Before the focus group begins, I will list all participants on a sheet of paper. Each name will be given a number. During the data analysis, your number will be used to clarify who is speaking, names will not be used when transcribing the data.

Confidentiality; responsibilities of participants

To help maintain the anonymity of participants, those who agree to participate also agree not to disclose or discuss the research with others. In discussing the research, you may disclose information about another participant (even unknowingly). Therefore, upon agreeing to participate, you are also agreeing not to discuss the research process with other people.

Confidentiality; rights of participants

I have a responsibility to maintain confidentiality to protect the identities of participants. Therefore, I will keep all audio recordings (and discussions heard) confidential, and not disclose information to anyone* (other than my supervisory team). Participants can speak freely on the topic, without worrying that the information will be "fed back" to their employers. There will be no collaboration with settings; participants views will be independent of the setting they are employed by. However, a description of the setting (for example, rural, town/ purpose built, pack away setting) may be used during the data analysis

Data collected from participants will be heard and read by only the researcher and the supervisory team. Once data has been anonymized (names and information changed), this data will be seen by those assessing the PhD thesis, and potentially viewed as published reports or written pieces in peer reviewed journals (but data at this point will be anonymized).

*Please note: In a safeguarding situation, the researcher has a duty of care (under the "Working Together to Safeguard Children", 2018 and the Mental Capacity Act, 2005 legislation) to report any concern for the welfare of a child or vulnerable adult. Safeguarding protocols will be followed, including reporting the concern to the setting the child is placed in, or "Customer First".

Right to withdraw from the research

All participants have the right to change their mind, even after you have participated in the focus group. You may also decide you do not want to answer one (or more) of the questions asked during the focus group. You have the right to refuse to answer any question. You also have the right to withdraw completely from the research. This will have no consequences or negative effect. Please retain this information letter, as the email contact can be used to contact the researcher to withdraw your data from the study. At the start of the focus group, you will be given a number. Should you wish to withdraw, you must give this number, along with your setting name to the researcher, who can remove your data from the study. Please note, you can withdraw your data for one month after the date of focus group (after this, your data may have been anonymized and transcribed making it difficult to identify from the data previously gathered from other participants).

If you are happy with these guidelines, and would like to participate, please inform your manager who has details of the date and time of the focus group. If you have any questions about the nature of the study, or being a participant, please do not hesitate to contact me by email at: e.harvey@uos.ac.uk (this is also the email to use should you wish to withdraw from the researcher later on).

Thank you for your time.

Kindest regards, Emma Harvey

Briefing sheet for interviews

University of Suffolk, Waterfront Building, 19 Neptune Quay, Ipswich IP4 1QJ e.harvey@ucs.ac.uk

Study title: An investigation into perspectives of technology enhanced learning in early years settings.

Main investigator: Emma Harvey

Academic supervisor: Professor Emma Bond Date:

Dear Recipient Name:

Thank you for your interest in the research project. My name is Emma Harvey, and I am a post graduate research student at the University of Suffolk, undertaking a PhD research project to explore the views of early years practitioners on the use of technology in early years settings.

As a student at the University of Suffolk, I have undertaken training on conducting research in an ethical manner, and I am guided by a supervisory team, and the ethics committee of the University. Both parties have examined the proposed research, to ensure participants are protected as far as can possibly be envisaged; the interview questions have also been discussed at "working party" meetings where early years professionals have discussed the relevance and validity of the questions, this means they have been checked to make sure the questions are relevant, have value, and give participants the opportunity to give their views in a non-leading way. Every effort has been made to ensure participants can speak freely on the topic. If you have any concerns about the ethics of this research, please feel free to contact Research Development Manager Andreea Tocca a.tocca@uos.ac.uk (01473 338656).

For those who agree to take part in the research, this brief sets out the aims of the research, what "being a participant" means for you, and how your data will be used. It also explains your rights as a participant.

The main aim of the research is to explore:

- What early years practitioners' views are on the use of technology in settings.
- Whether they feel confident in delivering activities and lessons with the use of technology.
- How they feel their early years training helped them to prepare for the use of technology with children.
- Their views on the amount of inclusion of technology within the EYFS framework, and
- If they feel technology use in early years settings has positive or negative effects on the overall provision of early years care and education.

It is hoped this research will give a "voice" to practitioners, who may want to share their opinions on this topic.

All practitioners are welcome to participate, regardless of their employment status or length of time as a practitioner. Those who may have additional language, learning of physical needs are also very welcome to participate; If you require additional support to attend, have particular environmental

needs or support to communicate during the interview, please advise the researcher at the time of arranging the meeting, so the researcher has time to meet your individual needs.

If you agree to participate:

Your wellbeing

Your wellbeing as a participant is of utmost importance; ensuring you are both physically and mentally comfortable with participating in the study is the main priority of the researcher. Therefore, the interviews will be carried out at times, days and locations which best suit you. This can be discussed when planning to meet with the researcher (the research will be carried out solely by myself). Interviews will be carried out in locations which have facilities such as rest rooms, and drinks and snacks will be provided. Comfort breaks will also be guided by you. Should you wish to meet at your place of work (if this is most convenient), I can supply my Enhanced DBS update number, should you wish to record this for safeguarding protocols. I have updated safeguarding training (September 2018), and experience in working in settings. This information is simply to assure those who are thinking of participating (and would like to meet at your place of work) that I am familiar with proper conduct when in settings which may have young children present.

Your rights, dignity and personal values are paramount; individuals participating in the research will have their views heard in a safe, nonjudgmental manner. The views of all participants will be valued, and all participant views will be entered into the dataset. Part of the ethical considerations undertaken as part of the planning process was to ensure that I collect data in an unbiased way, without projected outcomes or a "preconceived idea" of how participants will answer the interview questions. This research is an independent study, with no motive, other than to *explore the views* of practitioners on the topic of technology in settings; therefore, all views will be collected, and used within the study.

The commitment from you

The commitment would involve meeting the researcher (myself) for between 45 minutes to one hour. Participation would involve an informal spoken discussion and agreeing to have this discussion audio recorded so I can ensure I do not miss any vital information the practitioners tell me! The interviews can be carried out wherever and whenever is most convenient for participants (I know early years practitioners' time is precious.) There is no financial reward for taking part, however, expenses such as fuel costs, parking etc can be covered to ensure you are not "out of pocket" by agreeing to participate. Once the interview has been completed, there is no further commitment. There is also no consequence for deciding not to take part; you are under no obligation to partake.

How data will be collected

With your permission, data (your answers to the interview questions) will be captured through recording of voices (myself and you). There will be no video recording, and there will be no-one else in the room. The questions are related only to your views and experiences of working in settings using technology.

The audio equipment used to record the interviews will be a Dictaphone (no video recording possible). This is for participants peace of mind, and to maintain safeguarding protocols.

How data will be stored

The storage, use and deletion of data has been carefully considered in accordance with the General Data Protection Regulations (2018). The audio recordings will be stored at the University of Suffolk within the post graduate research room in a locked cupboard. Data will be kept on USB storage. The interview recordings will be transcribed into "data" at the University site; once the Dictaphone reaches the university site, the recordings will not leave this location (they will be deleted on site).

Should a data breach occur (data stored on the cloud system), I will contact the University data protection officer and my primary supervisor immediately, in accordance with the Post Graduate Researcher policy.

How data will be used

The answers and comments made to the interview questions will be transcribed into "data" (at this point your data will be anonymized). This anonymized data will be coded using software which will search for themes "thematic analysis". The data will be used within the PhD thesis, and potentially articles or pieces for peer reviewed academic journals. It is important participants are aware that in agreeing to take part in the study, they are also agreeing to their interview answers being used not only for the purpose of the PhD thesis, but potentially in subsequent pieces for academic journals. The data will be used by myself, no other students, academics, or writers will have access or permission to use the answers you provide.

The anonymized data will be stored on Google Drive (GDPD compliant) which is password protected and only accessible to the researcher.

How data will be destroyed

Participants original data will be kept until the PhD process has been completed (thesis marked and verified). Anonymized data may be kept for up to five years after collection. This may be included in relevant papers written on the topic by the researcher for journals.

Maintaining anonymity

All names of participants, and other information given (such as any names of work placements) will be changed to maintain confidentiality. This is to minimize the risk of participants being identified, should the research be published in peer reviewed journals. There is a small risk however, that participants may be identified from the remaining data which is included within the study (this is a small risk but must be explained prior to individuals agreeing to participate).

Confidentiality; responsibilities of participants

To help maintain the anonymity of participants, those who agree to participate also agree not to disclose or discuss the research with others. In discussing the research, you may disclose information about another participant (even unknowingly). Therefore, upon agreeing to participate, you are also agreeing not to discuss the research process with other people.

Confidentiality; rights of participants

I have a responsibility to maintain confidentiality to protect the identities of participants. Therefore, I will keep all audio recordings (and discussions heard) confidential, and not disclose information to anyone* (other than my supervisory team). Participants can speak freely on the topic, without worrying that the information will be "fed back" to their employers. There will be no collaboration with settings; participants views will be independent of the setting they are employed by. Participants are under no obligation to disclose which setting they are employed at. However, a

description of the setting (for example, rural, town/ purpose built, pack away setting) may be asked, as this information may be of importance when analysing data.

Data collected from participants will be heard and read by only the researcher and the supervisory team. Once data has been anonymized (names and information changed), this data will be seen by those assessing the PhD thesis, and potentially viewed as published reports or written pieces in peer reviewed journals.

*Please note: In a safeguarding situation, the researcher has a duty of care (under the "Working Together to Safeguard Children", 2018 and the Mental Capacity Act, 2005 legislation) to report any concern for the welfare of a child or vulnerable adult. Safeguarding protocols will be followed, including reporting the concern to the setting the child is placed in, or "Customer First".

Right to withdraw from the research

All participants have the right to change their mind, even after you have completed the interview. You may also decide you do not want to answer one (or more) of the questions asked during the interview. You have the right to refuse to answer any question. You also have the right to withdraw completely from the research. This will have no consequences or negative effect. Please retain this information letter, as the email contact can be used to contact the researcher to withdraw your data from the study. At the start of the interview, you will be given a "code" name; this is your anonymized name. Should you wish to withdraw, you must give this anonymized name to the researcher, who can remove your interview data from the study. Please note, you can withdraw your data for one month after the date of interview (after this, your data may have been anonymized and transcribed making it difficult to identify from the data previously gathered from other participants).

If you are happy with these guidelines, and would like to participate, or you have any questions about the nature of the study, or being a participant, please do not hesitate to contact me by email at: e.harvey@ucs.ac.uk (this is also the email to use should you wish to withdraw from the researcher later on). Thank you for your time.

Kindest regards, Emma Harvey

Appendix 7. Recruitment poster.

Postgraduate research study

University of Suffolk

AN INVESTIGATION INTO PERSPECTIVES OF TECHNOLOGY ENHANCED LEARNING IN EARLY YEARS SETTINGS

Our setting has been asked to support some research entitled "*An investigation into perspectives of technology enhanced learning in early years settings*"

The research is being conducted by a postgraduate research student under a supervisory team from the University of Suffolk.

There is lots of information and guidance included on the forum introduction page, including details on how the data collected on the forum chats will be used.

(Emma Harvey)

We are asking all early years staff to participate on a forum, set up an area which is important to share views, opinions, experiences, understand, so we can support practitioners to ideas and practice on the topic of the safe and beneficial use of technology in early years.

We hope you will agree this is specifically for technology for our youngest children.

Should you choose to take part, you will be asked to set up a user account; this gives you the opportunity to create a username, to keep your identity private.

Thank you

If you would like to participate, please visit

https://eyfs.tech/

Researcher details: Emma Harvey, e.harvey@uos.ac.uk Academic supervisor: Professor Emma Bond

Poster for EYPs

Our setting has been asked to support some research entitled “An Investigation into perspectives of technology enhanced learning in early years settings” which aims to explore the views of a range of stakeholders on the use of technology by preschool age children. One group of stakeholders identified for the research is those who work with this age group (namely, you as practitioners).

The research is being conducted by a post graduate research student (Emma Harvey) under a supervisory team from the University of Suffolk. We are asking all early years staff to participate on a forum, set up specifically for practitioners to share views, opinions, experiences, ideas, and practice.

If you would like to participate, please use the link below:

https://eyfs.tech/

Should you choose to take part, you will be asked to set up a user account; this gives you the opportunity to create a username, to keep your identity private.

There is lots of information and guidance included on the forum introduction page, including details on how the data collected on the forum chats will be used.

We hope you will agree this is an area which is important to understand, so we can support the safe and beneficial use of technology for our youngest children.

Thank you

Researcher details: Emma Harvey e.harvey@ucs.ac.uk Academic

supervisor: Professor Emma Bond

Appendix 8. Wave one data collection paperwork.

University of Suffolk

Unique reference code:

Consent page

I agree to participate in the research focus group conducted by Emma Harvey. I have been given a copy of the briefing sheet which I have read, and I understand this document sets out the purpose of the study and my rights as a participant. I am aware of the action to take should I wish to withdraw my consent.

I agree that the information I give during the focus group can be used in the study. I am aware of how the data will be stored and used.

I give my consent to have my voice audio recorded for the purpose of data collection.

Name (please print). …….

Signature: …….

Date: …….

Appendix 9. Summary of changes to the EYFS (2021).

The early years framework has been reviewed and updated several times since its creation, to reflect legislative changes, changes in requirements for protecting children's welfare, changes to theoretical concepts of planning, observation, and assessment, to keep the framework in line with current thinking and practice. The 2021 version of the EYFS was trialled in the academic year 2019- 2020. The pilot had revisions to the educational programmes and early learning goals. The current ELG Understanding the world (which holds the technology aspects of learning and development, where children would be assessed on the competency, skill, knowledge and understanding of technology) was revised; in the revised framework and early learning goals technology has been removed from the understanding the world early learning goal. In fact, technology has been removed completely from the statutory framework. The words technology and ICT do not exist in the latest statutory framework at all. One might ask the question; if early years settings do not need to prepare children for their early years assessment in the use of technology, will this widen the gap of inequality of experience between children with digitally rich preschool experiences and children who have experienced a deficit in the use of technology for several reasons. How will these inequalities affect children's digital literacy later? Another question which might be asked is why this has been removed?

A trial pilot for the new EYFS framework was carried out in 24 randomly selected statemaintained school nurseries in the academic year 2018-2019. Following this pilot year, evaluations of the feedback from practitioners from these schools was analysed by NatCen, who released the findings for consultation which closed on 31st January 2020. Consultations and views were sought from practitioners and teachers involved in early years teaching to gather opinions about the proposed changes. Many practitioners and teachers who took part in the pilot questioned the changes in maths topics, and the removal of a focus on assessing "shape, space and measure". These practitioners asked, if these are not assessed as part of the early learning goal, how will OFSTED know if these are being taught as part of the curriculum, and will we still have to teach these? The Department for Education early years reforms lead, Henna Jawaid replied by stating that although these elements of maths had been removed from the early learning goals, the ELGS are not intended to be used as a curriculum (although, she admitted, early years practitioners do use the ELGs as a curriculum). So, removing these elements from the ELGs did not mean the Department for Education had intended to have these removed from the teaching carried out at this level (Jawaid, 2020). These questions could also be applied to the use of technology; If technology is not mentioned anywhere in the statutory framework and there are no official

guidelines issued by the DfE to support practitioners on the amount of time, the devices and equipment which are suitable for children to engage with technology, and no measurable outcomes to examine, how can we be sure all children will be entering formal education of year one, and the National Curriculum (at which point technology and ICT become part of their curriculum), with equal experiences and opportunity to progress in the use of technology and IT? As Faulder (2021) explains, during the 2012 revisions of the early learning goals, programmable toys were removed from the assessment description. Soon after, a decline in coding provision was seen in settings. So, if ICT and technology are now removed completely, what will trend in provision look like in six months' time and further into the future?

The EYFS reforms consultation documents explain the rationale behind the changes is to make the ELGS more streamlined, to focus on literacy, and closing the gaps in literacy between children from disadvantaged backgrounds, in the hope that when all children enter year one, they are all working at similar literacy levels. This is a valid point. However, one may question whether removing all ICT and technology from the early years framework is wise, considering the use of technology is vital today, at home, in school, and preparing children for the world of work. Should revising the EYFS to close gaps in literacy involve removing a part of learning which is so vital (and will grow in importance as technology is used more and more in the future, and has been shown to support emergent literacy)? Technology is not going away, so removing all trace of this from a new, revised early years framework almost appears to be a step backwards, rather than progression in line with current teaching and learning, not parable with children's' practices at home, and certainly not preparing them for a part of the curriculum which so many feel the EYFS is the steppingstone to. The rationale given for removing technology is "the consensus from our experts, primary assessment consultation responses and then pilot evaluation suggests that this has little value as an end-point measure in itself" (Nursery World, 2019 p.1). This removal of technology from the framework was the catalyst for one of the objectives for this research, to investigate practitioners' views on these changes to the EYFS, and their views on whether they felt this was a positive or negative revision to the framework, and finally, to explore their views on whether they felt this would change their own setting's provision for technology.

Following on from this examination of the EYFS framework, the next section analyses theoretical viewpoints of child development and pedagogies of teaching which are evident in the EYFS framework, and an application of these theories to children's use of technology as part of the provision.

Appendix 10. Key terms for qualification review.

BIIAB

BIIAB has been an established awarding body for over 20 years offering qualifications and apprenticeships in a range of professions. Their suite of early years qualifications includes seven qualifications in levels 2 and 3. They do offer a level 3 qualification "BIIAB Level 3 Award in ICT in Early Years" which is usually offered as one of the optional units to complete a level 3 apprenticeship award. However, as this is an optional unit, there is no stipulation that a student would have to complete this as part of their main qualification.

Qualification	Unit	Assessment criteria	Method of assessment
Level 2 Diploma for the early years practitioner	The role and responsibilities of the early years practitioner	1.6; Identify own responsibilities when following procedures in the work setting for: • reporting •whistleblowing • protecting and promoting the welfare of children • safeguarding • confidentiality • information sharing • use of technology	Assessment of knowledge, so assessed via assignment, professional discussion, Q&A

Pearson BTEC

Pearson has a history of examinations as far back as 1836 (Pearson, 2020), but it was the acquisition of Edexcel in 1996 which brought Pearson to the forefront of vocational qualifications in care and education, taking on the BTEC qualifications in nursery nursing and childcare. Pearson offer globally recognised qualifications under the brands of BTEC, Edexcel, LCCI and EDI.

Qualification	Unit	Assessment criteria	Method of assessment
Pearson Edexcel level 3 EYE	Unit 10 Understanding How to Promote Play and Learning in the Early	Analyse the types of play that support the areas of learning and development outlined in statutory early years curricula.	As an “understand” criterion, this is an assessment of “knowledge”; this would be assessed with a written method; assignment, presentation created by the learner; quiz; piece of work created such as leaflet or booklet.

	Years	Expressive arts and design: art, music and songs, movement, dance, role-play, design, and technology; reading; story time; sand play. creative play; water play; dramatic play; imaginative play; outdoor play; drawing; writing; dough/clay play; table-top play; small world play; construction play	

Pearson Edexcel level 2 EYP	Unit 4 Safeguarding the Welfare of Babies and Young Children	Learning outcome 1: AC 1.3 Describe actions to take in response to evidence or concerns that a child has been abused, harmed. (Including self-harm) or bullied, or maybe at risk of harm, abuse, or bullying Know how to respond to evidence or concerns that a child has been abused, harmed, or bullied. Risk to children of using technologies: sexual abuse; emotional abuse; accessing inappropriate websites, e.g., pornographic material; giving out personal information. children putting themselves at risk of being targeted or groomed, cyber-bullying. sharing personal information when using social networking sites, buying goods or services online, using a mobile phone.	This would be assessed as "knowledge"; assessment methods could include assignment, question and answer, presentation, creation of a resource such as a leaflet or poster.
Pearson BTEC level 4 and 5 higher national certificate/	Unit 9 Investigating Childhood: Action	LO1 Discuss an area of early childhood education and	If the learner chose the new technologies topic for their project, the assessment would

diploma in early childhood education and care	Research for Early Childhood Practitioners	care practice for which a smallscale action research project can be undertaken; this unit has “essential teaching content” topics, one of which is the impact of new technologies on child development and progress, and on service provision. The learner would choose which topic they use to focus their project on, so may not be assessed on their knowledge in this area	be on their project work; plans, literature review, research on the “change” they put in place”, evaluations, reflections.
	Unit 3 Play and Learning in Early Childhood	Essential content of teaching for LO1; interpret the different theories of play (including digital play) LO4; determine the skills required to complete and interpret a range of observations on young children's self-chosen play in differing contexts (including using digital technology to observe children)	A knowledge-based criterion, so assessment would be through assignment work.

City & Guilds

City & Guilds describe themselves as a “global leader in skills development” (Guilds, 2020) with 140 years of experience in developing vocational skills for business.

Qualification	Unit	Assessment criteria	Method of assessment
C&G level 2 EYP	Unit 201 Exploring roles and development opportunities in early years settings	1.1- Explain own role, responsibilities, and accountabilities in line with policies and procedures of setting. Policies to include: ● Reporting • Whistleblowing • Protecting and promoting the welfare of children • Safeguarding	An “explain” criterion would be assessed with a professional discussion or question and answer assessment.
		• Confidentiality • Information sharing • Use of technology	

Future Quals

This awarding organisation describes itself as a “Visionary, Supportive, Innovative and Professional Awarding Organisation that is committed to excellence” ((Futurequalsuk, 2020).

Qualification	Unit	Assessment criteria	Method of assessment
Future Quals UK Level 3 Diploma in Early Years Education and Childcare (Early Years Educator)	Teaching topic 6 - The current Early Education Curriculum (The Early Years Foundation Stage 2014) - as part of this teaching topic, learners will learn that part of the “understanding the world” area of learning development is “technology” (in the 2014 EYFS; this is changing in 2021).	None of the key terms are included in any of the assessment criteria for this qualification. Learners will have teaching content on the EYFS (204), and in this will learn that “technology” falls under “understanding the world” in this version of the EYFS, but they will not be assessed on any aspect of technology	None

NCFE CACHE.

NCFE CACHE (Council for Awards in Care, Health, and Education); Arguably the most recognised awarding organisation for early years and childcare qualifications, CACHE was an evolution of the well-respected National Nursery examining board (NNEB), and CACHE merged with NCFE in 2015 (NCFE, 2018). The legacy of the NNEB qualification still draws training providers and setting managers to this company as the “gold standard” of training for those working with children.

Qualification	Unit	Assessment criteria	Method of assessment
CACHE technical level 3 diploma EYE	Unit 3.9: Facilitate the cognitive development of children	LO 3 Be able to facilitate the development of cognition in children. AC 3.2. Analyse the use of technology in supporting the development of cognition in children	As LO3 is a “be able to” outcome, this would be assessed as “skills”, so assessment methods would be through direct observation of the learner in practice with children, or a professional discussion
	Unit 3.10 Develop the Speech, Language and Communication of Children	LO 2; Understand how the Early Years practitioner supports the development of speech, language and communication of children. AC 2.3. Analyse how the use of technology supports the development of speech, language and communication	As LO2 is an “understand” outcome, this is considered “knowledge”, so this criterion would be assessed via assignment work, project work, or creating a resource such as a PowerPoint or presentation and sharing with the class.

	Unit 3.5 develop emergent literacy skills of children	LO 5. Be able to plan activities to support emergent literacy. AC 5.2. Use strategies to plan activities which encourage: speaking and listening reading sustained shared thinking writing digital literacy.	As a “be able to” learning outcome, this would be assessed with direct observation of skills. The “digital literacy” element is part of a larger criterion, the learner would need to plan, implement, and evaluate one activity for each of the 5 bullet points in the criterion, so only planning and implementing one activity which supports the development of digital literacy.
NCFE CACHE Level 2 Diploma for the Early Years Practitioner	EYP4 Safeguarding, protection and welfare of babies and young children in Early Years Settings	LO1 Understand legislation and guidelines for the safeguarding, protection and	As LO1 is an “understand” outcome, criterion 1.3 would be assessed as an assignment or other assessment in class (such as the production of a resource; poster, leaflet) or a presentation by the learner.

		welfare of babies and young children AC 1.3 Explain the roles and responsibilities of the Early Years Practitioner in relation to the following procedures: reporting/dealing with disclosure child protection and promoting the welfare of babies and young children safeguarding and security confidentiality information sharing use of technology	
CACHE level 5 early years senior practitioner	LM 502: Develop, maintain, and use records and reports	LO2. Be able to prepare professional records and reports that meet legal requirements and agreed ways of working AC 2.6 Use information communication technology (ICT) systems for the collection and storage of information	As LO2 is a “be able to” outcome, criterion 2.6 would be assessed as a “skill” via direct observation of the learner performing tasks, or if this is not possible, a professional discussion to talk about how they carry out the task.

	3.5 WB: Developing children's	LO4. Be able to use strategies to plan and lead activities which	Again, as a "be able to" outcome, this criterion would be assessed through direct observation of skills. As with the level 3 qualification, the learner would
	emergent literacy skills	support emergent literacy AC 4.1 Use strategies to plan activities which encourage: speaking and listening reading sustained shared thinking writing digital literacy	need to plan, implement, and evaluate activities which cover the 5 bullet points in the criterion. So, the learner may only plan and implement one activity which supports digital literacy

Ican Qualifications UK (IQC)

Ican Qualifications (IQC) is an awarding organisation regulated by Ofqual, CCEA and Qualifications Wales.

Qualification	Unit	Assessment criteria	Method of assessment
ICQ level 2 early yeas practitioner	Y/617/8428 safeguarding, protection and welfare of babies and young children	LO1- Outline policies and procedures for safeguarding babies and young children in an early year setting. AC- Explain the roles and responsibilities of the Early Years Practitioner in relation to the following procedures: a) reporting b) whistleblowing c) protecting and promoting the welfare of children d) safeguarding e) confidentiality f) information sharing g) use of technology	This criterion is an “explain” criterion, this would either be assessed via an assignment or professional discussion.
iCQ Level 3 Diploma for the Early Years	L/618/1598: Promote children's	LO- Understand how the Early Years Practitioner supports the	As the learning outcome is an “understand” outcome, this
Educator	speech, language, communication, and literacy	development of speech, language, and communication of children AC 04 Analyse how the use of technology supports the development of speech, language, and communication	criterion would be assessed as an assignment or work product created by the learner

	K/618/1589: Safeguarding, protection and welfare of babies and young children in Early Years Settings	LO- Understand policies and procedures for the safeguarding, protection, and welfare of children AC 01- Explain the roles and responsibilities of the Early Years Practitioner in relation to the following procedures: a) reporting b) whistleblowing c) protecting and promoting the welfare of children d) safeguarding e) confidentiality f) information sharing g) use of technology h) security	As this outcome is an "understand" this criterion would be assessed with an assignment, work product and similar class related activity
	L/618/1598: Promote children's speech, language, communication, and literacy Understand theory and current frameworks which underpin children's speech, language, and communication	LO- Understand how the Early Years Practitioner supports the development of speech, language, and communication of children AC 04 - Analyse how the use of technology supports the development of speech, language, and communication	As this outcome is an "understand" this criterion would be assessed with an assignment, work product and similar class related activity

Innovate Awarding (IQO).

Innovate Awarding (IAO) describe themselves as “a national Awarding Organisation regulated by Ofqual with a passion for doing things differently” (Innovateawarding, 2020).

Qualification	Unit	Assessment criteria	Method of assessment
IAO Level 2 Diploma for the Early Years Practitioner	T/617/8307 Safeguarding the welfare of babies and young children	LO3 Know how to respond to evidence or concerns that a baby or young child has been abused, harmed, or bullied AC 3.2 Describe the risks and possible consequences for babies and young children using the internet, mobile phones and other technologies	As this outcome is “know how to” and the criterion is a “describe” criterion, the learner would be assessed using methods such as assignment, work products such as leaflets, posters, or a presentation.
	F/617/6804 Continuing Professional Development within an Early Years setting	LO1. Understand own role and role of others within your workplace AC 1.4 Describe own responsibility and accountability in: • Reporting • Whistleblowing • Protecting the welfare of children • Promoting the welfare of children • Safeguarding • Confidentiality • Information sharing ● Use of technology	As an “understand” outcome and a “describe” criterion, this would be assessed with methods such as assignment, work products such as leaflets, posters, or a presentation.

Skillsfirst.

Skillsfirst describe themselves as a company who “design and develop qualifications and assessments which inspire people to fulfil their personal goals and drive their careers forward” (Skillsfirst, 2020).

Qualification	Unit	Assessment criteria	Method of assessment
Level 2 Diploma for the Early Years Practitioner (RQF)	EYP2 Understanding the safeguarding of babies and young children	LO2 Know the role and responsibilities of self and others in relation to the safeguarding of babies and young children AC1 Explain the roles and responsibilities of the Early Years Practitioner in relation to: • safeguarding and security • reporting of safeguarding concerns/disclosures • use of technology • confidentiality and information sharing	As an “understand” and “explain” criterion, this would be assessed using methods such as assignment, work products such as leaflets, posters, or a presentation.
	EYP2 Understanding the safeguarding of babies and young children	LO2 Know the role and responsibilities of self and others in relation to the safeguarding of babies and young children AC3- explain the roles and responsibilities of others in relation to: • safeguarding and security • reporting of safeguarding concerns/disclosures • whistleblowing • use of technology	As an “understand” and “explain” criterion, this would be assessed using methods such as assignment, work products such as leaflets, posters, or a presentation.

		• confidentiality and information sharing	
	EYP9 Developing self in a babies and young children's work setting	LO1 Understand what is required for competence in own work role AC1 Understand workplace policies and procedures may include:	As an "understand" criterion, this would be assessed using methods such as assignment, work products such as leaflets, posters, or a presentation.
		• reporting • whistleblowing • protecting and promoting the welfare of children • safeguarding • confidentiality • information sharing ● Use of technology	

Level 3 Diploma for the Children & Young People's Workforce (Early Years Educator) (RQF)	EYE3 Understand how to safeguard the well-being of children and practitioners	LO 4 Understand how to respond to evidence or concerns that a child has been bullied AC explain different types of bullying and the potential effects on children 2 outline the policies and procedures that should be followed in response to concerns or evidence of bullying and explain the reasons why they are in place 3 explain how to support a child and or their family when bullying is suspected or alleged Bullying may include: (5 types of bullying listed, one being cyber bullying, the use of technology)	As an "understand" criterion, this would be assessed using methods such as assignment, work products such as leaflets, posters, or a presentation.

Appendix 11. Manager feedback on recommendations for practice.

Email sent 10.8.21 to setting managers and senior leaders- validation of recommendation

Hi ******, I hope you are well?

I wanted to ask your opinion….

I am coming to the end of my PhD and writing up the findings. The topic is technology use in early years settings.

One of the prominent themes is that practitioners feel they did not receive adequate training (from their main qualification or subsequent CPD) on how to use technology (either as part of their role for observing, tracking, assessing, recording data, using nursery software, marketing and maintaining the setting's online presence, communication with parents and other professionals etc), nor for using technology as a tool for teaching and learning with the children, how to confidently embed technology into a multi modal pedagogy, and immerse technology into the ecology of the classroom. Further, it was identified that some practitioners could really benefit from basic information such as maintaining their own personal online presence as a professional and being mindful of their digital footprint.

I have recommended the following:

1. That further research be carried out in consultation with setting managers and senior leaders to find out what they feel would be beneficial to add into trainee practitioner qualifications to help practitioners be more “employment ready” (in relation to using technology).

2. To create a role for a senior practitioner who could undertake some specialist training (like the role of the SENCO and PANCO) who could then take the lead responsibility for co-ordination of using technology across the setting and cascade training and knowledge to their team.

3. To create a support network for these tech co-ordinators (similar to the support networks for SENCO and PANCOs) so the tech co-ordinators could liaise with others in the role, share best practice, look for training and CPD etc.

I just wondered what you thought about these recommendations, and as a setting owner/ manager do you think this would be helpful?

If you could give your thoughts on the benefits (or not) of this I would really appreciate it.

Kindest regards,

Emma Harvey

These recommendations were shared with several setting managers, and their feedback sought. The following feedback was received:

Respondent 1:

Response to recommendation 3; “I think this is a really good idea, for new staff to have some knowledge of online learning systems that settings use to give them some basic knowledge, to be able to write observations online as many settings uses these”.

Response to recommendation 2: “A really good idea for staff to have a point of contact to go to, to ask questions or get support, to be able to train staff and pass on knowledge”,

Response to recommendation 4: “This is great as they can share tips and best practice with other settings”.

Respondent 2:

I think the recommendations are brilliant.

Firstly… having a qualification or some sort of training is highly beneficial for trainees as everything is computer orientated these days. I remember I had to complete a short course in key skills during my level 3 in Early years which has helped massively towards my employment opportunities.

I think having a designated technology co-ordinator is also a really good idea as it is distributing a role to someone who could be more committed to supporting others. It lightens the load for the manager as well as providing confidence that all staff will have a go to person for help if they need it.

Also having a tech support community is fantastic as it offers opportunity for communication among settings which will in turn supports these tech co-ordinators in their own role.

Well done, Emma, some great ideas.

Respondent 3:

Response to recommendation 1: We recently interviewed a newly qualified practitioner and her knowledge of software such as Famly/Tapestry/parentmail etc were very limited. I am confident that due to the heavy presence of technology in the lives of the generation of newly qualified practitioners she would soon pick it up and find her way around. However, if she'd had opportunity at some point for a demo, or similar from one of the main names it would most likely have given some understanding and confidence in this area. Before we signed up to Famly I looked at many different companies and nearly all offered a demo. A lot of these were so similar it was hard to pick from. It would be quite easy to transfer understanding of a programme for learning journeys i.e., Tapestry which is widely used, to a complete software programme like Famly. This would certainly help them be more "employment ready".

Response to recommendation 2: This would be great. I think most settings naturally have a "go to person”. when they need some help but an actual role to consolidate it with training would be ideal.

Response to recommendation 4: In my experience support is always welcomed. It's great to share best practice and ideas to keep you inspired and up to date. I am sure it would be welcomed!

Respondent 4:

I think your recommendations are good, it is true that we take on all these other job roles as managers and practitioners and do not get training in how to make these jobs easier. We are given training and can read up on doing the role, but not how to deliver it with ICT. Good training would save us lots of time in the long run and make it so more efficient.

If there was training in ICT, I would definitely take it up. I do, however, now have two members of staff that passed a couple of years ago and they did do ICT as part of their course as functional skills. I think maybe we were the lost generation in that training.

Appendix 12. NCFE CACHE content writer's feedback on recommendations for practice

Validation of recommendations

10.8.21 Email to the senior subject specialist at NCFE CACHE

Good morning, Janet I hope you are keeping well?

I am in the final year of my PhD, and the topic is examining practitioner's views and perspectives on the use of technology in early years settings.

I am writing up my findings and making recommendations for practice.

One of the prominent themes in my findings is that practitioners and managers have expressed a lack of training (both in their main qualifications, and subsequent CPD) on how to use technology, as part of their role (for admin purposes, marketing, using nursery software etc) and how to use technology as a tool for teaching and learning with children. Bearing in mind some of my participants qualified over 30 years ago, you can imagine that their training had no criteria on using technology, but even practitioners who qualified more recently have reported feeling that they would have liked to have received more content in their training about using technology.

One of my recommendations is that further research be carried out, consulting with setting managers and senior practitioners to conduct a skills gap analysis to find out exactly what they feel would beneficial for trainee practitioners to be learning as part of their course (in relation to using technology), so awarding bodies could have further information about this, with a view of possibly adding some content into one of the units, or creating a "bolt on unit", so practitioners are given the opportunity to explore software packages such as Tapestry, and have some time during their course to understand the responsibilities of practitioners in terms of technology use.

The second recommendation is that a specialist role (like that of SENCO and PANCO) be created, so every setting has a senior practitioner leading technology use, managing the online presence of the setting, managing the nursery software, keeping up to date with changes to legislation, policy, and practice, maintaining knowledge of online safety, and cascading training to their team. Of course, this specialist role would require some training (similar to the SENCO and PANCO training), and I wondered if CACHE would be interested in taking this forward with me?

I wondered if you had any thoughts on this, and if you think this would be something CACHE would be interested in looking at?

I look forward to hearing from you soon.

Emma Harvey
MA, BSc (Hons), PGCE, QTLS, A1 V1
Suffolk New College tutor, assessor, IQA
Early years & education

Good afternoon, Janet I hope you are well?

Please find attached a report which outlines the findings from my thesis research, focussing on the findings which support the four recommendations for practice which are.

1. To conduct further research with setting managers to identify skills gaps in practitioners' knowledge, understanding and skills in using technology, both as part of the practitioner role, and supporting children's use of technology,

2. To create a specialist role for "technology co-ordinators" (TECHCO), similar to SENCO and PANCO for practitioners with a particular interest or flair for technology use, who will be a leader or a champion for their setting,

3. To update and revive the CACHE level 3 award for ICT in early years to promote this as a qualification which technology co-ordinators could complete as part of their role,

4. To create a community of practice for tech co-ordinators where this specialist role can flourish and grow, and knowledge and best practice can be shared. This needs to be hosted by a well-known, national organisation with the scope for building this community of practice.

I have started to look at the level 3 qualification and making some notes on how we can structure the 2 units. I don't know if you want to look at a date for another meeting about this before Christmas. I know you must have lots of other projects on, so please let me know how quickly you would like to move with this, and if there is anything else I can be doing (other than revising the level 3 qualification spec).

I look forward to hearing from you soon.

Kind regards,

Emma Harvey
MA, BSc (Hons), PGCE, QTLS, A1 V1
Suffolk New College tutor, assessor, IQA
Early years & education

Hi Emma,
Many thanks for this, it's amazing, I am going to look through at length and yes will pop another date in before Christmas-thank you so much for sharing, let's make it happen!

Janet

Hi Emma,

Shall we meet late Nov/early December with a view to producing a proposal? I would need to follow the process for development, but we can build a proposal? Thanks again for sharing, incredible work Emma and can't wait to get cracking. We may need to consider this not being a regulated qualification but a resource to support early years students studying at L3 or make it a L4 workforce qual….either or both!!

Please let me know when would work for you,

Janet King
Sector Manager Education and Childcare

Appendix 13. Current version of new DALCo qualification

Qualification Specification

NCFE CACHE Level 4 Award for digital activity lead co-ordinators in Early Years Settings (DALCo)

QRN: *********

Qualification reference number:

NCFE CACHE Level 4 ******** QRN: ******

Publication date
Version 1.0 ******* **Publisher**

Registered Office: NCFE

Q6 Quorum Business Park

Benton Lane

Newcastle upon Tyne

NE12 8BT

Registered Company No: 02896700 (England and Wales) Registered

Charity No: 1034808

Contents

Section 1: General introduction

About this Qualification Specification

This Qualification Specification contains details of all the units and assessments you will be required to complete to gain this qualification.

How the qualification works

This qualification is made up of units, each representing a small step of learning. This allows the qualification to be completed at your own pace.

All the units achieved can be 'banked'. This means that if you want to take another qualification which includes the same units you do not have to take them again.

Each unit has:

- a **level** - shows how difficult it is
- a **credit value** - one credit represents about 10 hours' work
- a **unit aim** - explains what is covered in the unit
- **learning outcomes** - cover what you need to do (skills) or what you need to understand (knowledge)
- **assessment criteria** - what you need to show (evidence)

Each learning outcome is linked to a number of assessment criteria. Evidence must be provided for all the assessment criteria to gain the unit.

Learning outcomes The learner will:	**Assessment criteria** The learner can:	**Evidence record** e.g. page number & method	**Assessor judgement achieved** Initial and date
1. Know substances which are commonly misused.	1.1. List **categories** of substances which are commonly misused.		
	1.2. Identify substances which are commonly misused.		

Total Qualification Time

Total Qualification Time (TQT) is comprised of the following two elements:

· the number of hours which we have allocated to a qualification for Guided Learning

· an estimated number of hours a Learner will reasonably be likely to spend in preparation, study, or any other form of participation in education or training, but not under the immediate supervision of a Tutor or Assessor.

Centres can decide how to allocate the TQT across the units of a qualification. Guided

Learning (GL)

· Guided Learning (GL) and TQT apply to the qualification as a whole. · We use GL to refer to the estimated guided learning hours at unit level.

Recognition of Prior Learning (RPL)

Centres may recognise prior learning at their discretion if they are satisfied that the evidence provided by the learner meets the requirements of a qualification. Where RPL is to be used extensively (for a whole unit or more), advice must be given by your External Quality Advisor.

Understanding learning outcomes

There are two main types of learning outcome:

· **Skills** that can be performed

· **Knowledge** that can be learnt.

Sometimes they can cover a combination of the two.

Competence-/Skills-based learning outcomes:

· Begin with 'Be able to'. The assessment criteria usually show that the evidence could be observed within a real work environment. Other methods may be applied, please see the chart in the Assessment Guidance section. All evidence must be based on the learner's experience in a real work environment.

Knowledge-based learning outcomes:

· Begin with 'Know', 'Understand' or 'Know how to'.

For your convenience, Knowledge-only units are indicated by a lightbulb in both the Unit Achievement Log and at the top of the units.

If a unit is not marked with a lightbulb, it is a skills unit or contains a mix of knowledge and skills.

Making use of our websites

Our websites are maintained on a regular basis, and this is where the most up-to-date documents can be found. We strongly advise that these should be used as a resource on an ongoing basis to ensure you always have the most current information.

All our qualification documents are version controlled, allowing you to check for updates or revisions.

The Public Website

Our public website address is www.cache.org.uk. The website contains information about all our qualifications, and also a link to our QualHub www.qualhub.co.uk which contains:

· Key Facts

· Qualification Specifications

There are also some other key documents that can be referred to when required. For example:

· Complaints Policy

· Enquiries and Appeals Policy

· Diversity and Equality Policy

It also contains regular news updates and case studies and links to websites from other organisations that might be of interest.

The Centre Secure Website

More specific information to support Centre delivery can be found in our members area on QualHub. **This site is for Approved Centres only.**

To access the members area on QualHub, please log in using the details provided by the Centre administrator.

Plagiarism

Plagiarism means claiming work to be your own, which has been copied from someone or somewhere else. All the work you submit must be your own and not copied from anyone else unless you clearly reference the source of your information. Your tutor will explain how to provide a reference list that shows where you found your information. If your Centre discovers evidence that your work is copied from elsewhere, it will not be accepted, and you may be subject to your Centre's or our disciplinary procedure. If this happens you will have to submit an additional piece of work for assessment. We will be notified of any cases of plagiarism.

Buying and selling assignments

Offering to buy or sell assignments is not allowed. This includes using sites such as eBay. If this happens, we reserve the right not to accept future entries from you.

Equal opportunities

We fully support the principle of equal opportunities and oppose all unlawful or unfair discrimination on the grounds of ability, age, colour, culture, disability, domestic circumstances, employment status, gender, marital status, nationality, political orientation, racial origin, religious beliefs, sexual orientation, and social background. We aim to ensure that equality of opportunity is promoted and that unlawful or unfair discrimination, whether direct or indirect, is eliminated both in its own employment practices and in access to its qualifications. A copy of CACHE's Diversity and Equality policy is available on the website.

Diversity, access, and inclusion

Our qualifications and associated assessments are designed to be accessible, inclusive, and non-discriminatory. We regularly evaluate and monitor the 6 diversity strands (gender, age, race, disability, religion, sexual orientation) throughout the development process as well as delivery, external moderation, and external assessment processes of live qualifications. This ensures that positive attitudes and good relations are promoted, discriminatory language is not used, and our assessment procedures are fully inclusive.

Learners who require reasonable adjustments or special consideration should discuss their requirements with their Tutor, who should refer to our Reasonable Adjustments and Special Considerations policy for guidance. For more information on the Reasonable Adjustments and Special Considerations policy please see our website: www.qualhub.co.uk

Section 2: About this qualification

Qualification summary

Title	NCFE CACHE Level
Qualification number	
Aim	The main objective of this qualification is to provide learners with the knowledge and skills to be able to integrate the use of technology in early years learning. The Level 4 Award has been developed for those who work directly with children and support their learning. Upon achievement of this qualification, it is intended that learners will be equipped to support children's learning using technology effectively and support the team of practitioners in the efficient and safe use of technology.
Purpose	D. Confirm occupational competence and/or 'licence to practice'. D1. Confirm competence in an occupational role to the standards required.
Ofqual code and description	
	86
Total Qualification Time (hours)	47
Guided Learning (hours)	9 **Minimum credits at/above Level**
Credit value	16+
Minimum age of learner	This qualification prepares the learner to work with children between birth and five years, with knowledge of children up to seven years.
Age ranges covered by the qualification	Learners will need to be working or volunteering in an Early Years setting in order to meet the requirements for assessment. No simulation will be permitted.
Real work environment (RWE) requirement / recommendation	

Rules of combination	In order to achieve the Level 3 Award in ICT in Early Years, learners must gain a total of nine credits. To do this they must achieve two mandatory units.
Progression including job roles	Job roles include: · practitioner in day nurseries · practitioner in nursery schools · practitioner in primary school reception classes · pre-school worker.
Recommended assessment methods	Both units will be internally assessed using a range of methods. This could include direct observation within the workplace, a portfolio of evidence, written assignments or a task set by us*. * NB: assessment tasks can be provided for tutors' convenience. They are not mandatory.
Additional assessment requirements	Work-based qualification with no simulation allowed.
Grading system	Achieved/Not Yet Achieved
Entry requirements / recommendations	Learners must be at least 16 years of age. We do not set any other entry requirements, but Centres may have their own guidelines.
About this qualification	This is a regulated qualification. The regulated number for this qualification is 603/0994/5.

Section 3:

Unit achievement log – Level 3 Award in ICT in Early Years

Unit ref.	Unit no.	Unit title	Level

*****	1	Facilitate good practice in the use of ICT in Early Years settings	4
*****	2	Support children's learning using ICT	4

* This table shows the estimated total hours for each unit. Please see the unit details for a breakdown of guided learning and non-guided learning hours.

Unit layout

For each unit the following information has been provided:	
Unit title	Provides a clear, concise explanation of the content of the unit.
Organisation unit reference number	The unique number assigned by the owner of the unit.
Unit reference	The unique reference number given to each unit at qualification approval by Ofqual.
Unit level	Denotes the level of the unit within the framework.
Unit credit value	The value that has been given to the unit based on the expected learning time for an average learner.
Unit aim	Provides a brief outline of the unit content.
Learning outcome	A statement of what a learner will know, understand or be able to do as a result of a process of learning.

Assessment criteria	A description of the requirements a learner must achieve to demonstrate that a learning outcome has been met.
Additional information*	This box identifies the assessment strategy relevant to the unit. When required, this will include specific guidance relating to the assessment of the unit and information to support the learner to achieve.
Unit assessment guidance*	Any additional guidance provided to support the assessment of the unit.
Unit guided learning hours	The average number of hours of supervised or directed study time or assessment required to achieve a qualification or unit of a qualification.
Unit non-guided learning hours	The average number of hours of private study, or other unsupervised activities, required to achieve a qualification or unit of a qualification.
Assessment task (set by us) *	A scenario or aspect of the work role that will support the learner in producing the evidence requirements for knowledge-only learning outcomes.

NB: Words highlighted in bold in the learning outcomes, assessment criteria and assessment tasks are linked to the additional guidance section where more information can be found.

Explanation of terms used at Level 4

(Not all verbs are used in this qualification)

Apply	Explain how existing knowledge can be linked to new or different situations in practice.
Analyse	Break the subject down into separate parts and examine each part. Show how the main ideas are related and why they are important. Reference to current research or theory may support the analysis.

Clarify	Explain the information in a clear, concise way.
Classify	Organise according to specific criteria.
Collate	Collect and present information arranged in sequence or logical order.
Compare	Examine the subjects in detail and consider the similarities and differences.
Critically compare	This is a development of compare where the learner considers the positive aspects and limitations of the subject.
Consider	Think carefully and write about a problem, action, or decision.
Demonstrate	Show an understanding by describing, explaining, or illustrating using examples.
Describe	Write about the subject giving detailed information in a logical way.
Develop (a plan/idea which …)	Expand a plan or idea by adding more detail and/or depth of information.
Diagnose	Identify the cause based on valid evidence.
Differentiate	Identify the differences between two or more things.
Discuss	Write a detailed account giving a range of views or opinions.

Distinguish	Explain the difference between two or more items, resources, or pieces of information.
Draw conclusions (Which …)	Make a final decision or judgement based on reasons.

Estimate	Form an approximate opinion or judgement using previous knowledge or considering other information.
Evaluate	Examine strengths and weaknesses, arguments for and against and/or similarities and differences. Judge the evidence from the different perspectives and make a valid conclusion or reasoned judgement. Reference to current research or theory may support the evaluation.
Explain	Provide detailed information about the subject with reasons showing how or why. Responses could include examples to support these reasons.
Extrapolate	Use existing knowledge to predict possible outcomes which might be outside the norm.
Identify	Recognise and name the main points accurately. (Some description may also be necessary to gain higher marks when using compensatory marking.)
Implement	Explain how to put an idea or plan into action.
Interpret	Explain the meaning of something.
Judge	Form an opinion or make a decision.
Justify	Give a satisfactory explanation for actions or decisions.

Plan	Think about and organise information in a logical way using an appropriate format.
Perform	Carry out a task or process to meet the requirements of the question.
Provide	Identify and give relevant and detailed information in relation to the subject.
Review and revise	Look back over the subject and make corrections or changes.
Reflect	Learners should consider their actions, experiences or learning and the implications of this for their practice and/or professional development.
Select	Make an informed choice for a specific purpose.
Show	Supply evidence to demonstrate accurate knowledge and understanding.
State	Give the main points clearly in sentences or paragraphs.
Summarise	Give the main ideas or facts in a concise way.

Unit 1: Facilitate and support good practice in the use of ICT in Early Years settings

Unit reference	F/615/4527		**Unit level**	4
Credit value	4			
Unit hours	**Guided learning**	21	**Non-guided learning**	20

Unit aim	This unit provides the learner with the knowledge, understanding and skills to facilitate good practice in the use of ICT in an Early Years setting.

Learner name:		**Centre no:**	
PIN:		**ULN:**	

Learning outcomes, The learner will:	**Assessment criteria** The learner can:	**Evidence records** e.g., page number & method	**Assessor judgement achieved** Initial and date
1. Understand legislation, policies, and procedures relevant to ICT in Early Years settings.	1.1. Outline legislation relevant to ICT policies in Early Years settings.		
	1.2. Explain how policies and procedures support the use of ICT in your own Early Years setting.		

2. Be able to apply equality, social inclusion, and anti-discriminatory practice in ICT learning in Early years settings.	2.1. Facilitate ICT learning in ways which support: equality social inclusion anti-discriminatory practice in Early Years settings.		

Learning outcomes, The learner will:	**Assessment criteria** The learner can:	**Evidence records** e.g., page number & method	**Assessor judgement achieved** Initial and date
3. Be able to promote online safety e-safety in Early Years settings.	3.1. Define 'e-safety' "online safety"		
	3.2. Explain the principles of e-safety online safety, with reference to: · children · staff.		
	3.3. Implement online safety e-safety guidelines.		
	3.4. Demonstrate commitment to online safety e-safety through own practice.		

	3.5. Promote online safety e-safety through the reinforcement of key messages.		
	3.6 Discuss a range of sources of information and guidance which can be used to support children's technology use, including charities and educational orgnisations		
	3.7 Evaluate and discuss own setting's policies in relation to online safety and suggest improvements to these		
4. Be able to maintain a healthy and safe environment for children online and when accessing ICT.	4.1. Explain the physical and mental health risks faced by children when using ~~ICT~~. "technology"		
	4.2. Explain how to create a safe environment for children when accessing. ~~ICT~~. "technology"		

	4.3. Demonstrate the safe use of ~~ICT~~. "technology" with children in an Early Years setting.		
	4.4. Explain how children in own setting have an understanding of online safety relevant to their age.		

5. Be able to maintain a healthy online presence for self and the setting	5.1 Discuss the term “digital footprint” and how this can affect professional reputation		
	5.2 Explain how to protect your digital footprint		
	5.3 Discuss situations where online behaviour can impact on a setting’s reputation		
6. Champion the role of the DALCo	6.1 Demonstrate ways in which the DALCo can work with parents to educate and support their knowledge and understanding of provisioning technology use in a blanched, safe, and educational way		
	6.2 Explain ways in which the DALCo can collaborate and liaise with other DALCos to share ideas and good practice including the use of: ● Social media ● Online groups and blogs ● The DALCO network ● Contacting other settings via email		
	● The use local authority meetings and contacts		
	6.3 Explain the role of the DALCo in supporting their team to use technology safely and effectively in the EYP role		

	6.4 Explain ways in which the DALCo can cascade knowledge on technology use to their team, and why this is important		
	6.5 Explain how the DALCo can use supervisions and other staff meeting times to evaluate EYP needs in terms of mentoring, support, and training in the use of technology		

Learning outcomes, The learner will:	**Assessment criteria** The learner can:	**Evidence records** e.g., page number & method	**Assessor judgement achieved** Initial and date
7. Be able to evaluate and develop own-ICT" skills to support Early Years learning.	7.1. Apply ICT knowledge and skills to support Early Years learning.		
	7.2. Evaluate own ICT skills.		
	7.3. Explain own ICT development needs, with reference to Early Years learning.		

	7.4. Develop a plan to address own ICT learning needs.		
	7.5. Implement own ICT development plan including maintaining knowledge and understanding of current trends in technology related to early years practice		

8. Understand how to use appropriate forms of communication using ICT.	8.1. Describe different forms of ICT which will assist in communication with: · Key Person (EYFS term) · colleagues · parents and/or carers · other professionals.		
	8.2 Discuss the benefits of using technology as a form of communication for: ● Parents ● Colleagues ● Others		
	8.3 Discuss potential barriers to effective and efficient technology use when communicating with parents, colleagues, and others		

9. Be able to demonstrate competency in the use of technology for a range of purposes	9.1 Demonstrate the use of technology in the use of nursery management software to record care routines such as: ● Nappy changing ● Food and drink consumption ● Recording an accident		

	9.2 Demonstrate the use of technology for capturing learning moments		
	9.3 Demonstrate the use of technology for recording the learning journey (an entry onto a digital learning journal)		
	9.4. Explain the use of technology in: • observations • assessments.		
	9.5. Use ICT resources to support: • observations • assessments.		
	9.6. Explain the use of technology in transitions.		
	9.7. Use technology to support transitions.		
	9.8 Demonstrate the use of technology for communicating with: ● A parent ● A colleague ● Other		

10. Be able to monitor setting's provision	10.1 Discuss ways in which the DALCo can monitor and assess the setting's provision of technology		
	10.2 Conduct an audit of own setting's technology provision and evaluate current levels, offering ways to maintain or improve provision		

Learner declaration of authenticity:

I declare that the work presented for this unit is entirely my own work. Learner signature: Date:

Assessor sign-off of completed unit: Unit 1

I confirm that the learner has met the requirements for all assessment criteria, demonstrating knowledge and skills for this unit.

Assessor name:

Signature: Date:

For e-portfolio a signature is not required, providing the learner has a personalised and secure login.

Guidance for developing assessment arrangements for the unit:

Guidance for developing unit assessment arrangements.	Learners should collate evidence from their daily practice to meet the assessment criteria. Assessment methods may include: · direct observation of the learner in the setting · reflective account · professional discussion · examples of own work using ICT.
Unit assessment guidance.	Internal assessment only. Learners will be graded Achieved/Not Yet Achieved.

Unit 2: Support children's learning using ~~ICT~~. "technology"

Unit reference	*****		**Unit level**	4
Credit value	5			
Unit hours	**Guided learning**	26	**Non-guided learning**	19
Unit aim	This unit provides the learner with the knowledge, understanding and skills to support children's learning using ICT. "technology".			

Learner name:		**Centre no:**	
PIN:		**ULN:**	

Learning outcomes, The learner will:	**Assessment criteria** The learner can:	**Evidence records** e.g., page number & method	**Assessor judgement achieved** Initial and date
1. Be able to use ICT in observations and assessments in Early Years settings.	1.1. Explain the use of ICT in: · observations · assessments.		
	1.2. Use ICT resources to support: · observations · assessments.		
2. Be able to use ICT in transitions between Early Years settings.	2.1. Explain the use of ICT in transitions.		
	2.2. Use ICT to support transitions.		
3. Understand how ~~ICT~~. "technology" supports Early Years learning.	3.1. Explain, the benefits of ICT. "technology "to children's learning.		
	3.2. Identify ~~ICT~~. "technology" resources that can support Early Years learning.		

Learning outcomes, The learner will:	**Assessment criteria** The learner can:	**Evidence records** e.g., page number & method	**Assessor judgement achieved** Initial and date
	3.3. Explain the areas Describe how every area of the Early Years Curriculum (EYFS) that can be supported by technology		
	3.4 Explain how technology use can support cognition and neurological development		
	3.5 Outline the nonstatutory documents which can support practitioners to embed technology into provision		
	3.6. Explain how the key elements of technology can be used to support children's learning.		

	3.7 Explain the concepts of technology for consumption and technology for creation and why it is important practitioners understand these concepts		

	3.8 Discuss balancing the risks of children using technology and the internet with their right to experience this as a mode of learning		
4. Understand how to embed technology into teaching and learning	4.1 Explain how each of these can support learning: ● Interactive whiteboard (IWB) ● Tablet ● Programmable toys ● Digital camera ● Cause and effect technology (such as buttons and levers) ● Tech toys such as digital story books and lights and sounds toys ● Retro or relic articles		

	4.2 Discuss current trends for young children's technology use including: ● Popular devices and methods of being online ● Popular apps and games for young children ● Popular social media influencers, videos, television programmes and other form of media consumption		

	4.3 Explain the term "multimodal learning" and how this relates to technology use in settings		
	4.4 Discuss a range of teaching pedagogies which can be employed to support children's learning with technology		
5. Be able to deliver and evaluate a combination of activities for children's ICT skills development.	5.1. Use technology through a combination of child initiated and adult-led everyday activities to support children's learning and development.		

	5.2. Provide both structured and spontaneous opportunities and activities that develop children's skills, knowledge and understanding of technology.		
	5.3. Evaluate the activities and record children's developments using technology.		
6. Be able to offer age-appropriate opportunities for technology use	6.1 Demonstrate activities and learning opportunities which incorporate technology at ageappropriate levels for children aged 0-2 years		
	6.2 Demonstrate activities and learning opportunities which incorporate technology at age-appropriate levels for children aged 2-3 years		

	6.3 Demonstrate activities and learning opportunities which incorporate technology at age-appropriate levels for children aged 3-5 years		
7. Be able to make accurate and productive use of ~~ICT~~. "technology" assessments in Early Years development.	7.1. Explain how individual plans support ICT learning for children. using a range of data collection methods can help to ascertain a child's previous experiences of technology use including: ● On entry data collected from parents and carers ● Baseline assessments ● Regular parents/ carer questionnaires		
	7.2. Assess children's ICT skills.		
	7.3. Create individual plans for children to support their ICT development.		

Learner declaration of authenticity:

I declare that the work presented for this unit is entirely my own work. Learner signature: Date:

Assessor sign-off of completed unit: Unit 2 I confirm that the learner has met the requirements for all assessment criteria, demonstrating knowledge and skills for this unit. Assessor name: Signature: Date:

For e-portfolio a signature is not required, providing the learner has a personalised and secure login.

Guidance for developing assessment arrangements for the unit:	
Guidance for developing unit assessment arrangements.	Learners should collate evidence from their daily practice to meet the assessment criteria. Assessment methods may include: · direct observation of the learner in the setting · reflective account · professional discussion · examples of own work using ICT.
Unit assessment guidance.	Internal assessment only. Learners will be graded Achieved/Not Yet Achieved.

Section 4: Assessment and quality assurance information

Recommended assessment methods

A recommended range of assessment methods has been identified, which may be used for the units in this qualification. This gives the opportunity for different learning styles and the individual needs of learners to be taken into account.

If you are proposing to use an assessment method that is not included within the recommended list, you should contact your Customer Quality Advisor with full details of your proposed method. It will need formal approval from us before it can be used.

Please refer to the notes relating to **Expert Witness testimony** which follow this table.

Ref	Assessment Method	Assessing Competence / Skills	Assessing Knowledge / Understanding
A	Direct observation of learner by Assessor · by an Assessor who meets the relevant Sector Skills Council's or other assessment strategy/principles and includes inference of knowledge from this direct observation of practice	Yes	Yes
B	Professional discussion	Yes	Yes
C	Expert Witness evidence* · when directed by the Sector Skills Council or other assessment strategy/principles	Yes	Yes
D	Learner's own work products	Yes	Yes
E	Learner log or reflective diary	Yes	Yes
F	Activity plan or planned activity	Yes	Yes

G	Observation of children, young people, or adults by the learner	Yes	Yes
H	Portfolio of evidence	Yes	Yes
I	Recognition of prior learning	Yes	Yes
J	Reflection on own practice in real work environment	Yes	Yes

Ref	**Assessment Method**	**Assessing Competence / Skills**	**Assessing Knowledge / Understanding**
K	Written and pictorial information	No	Yes
L	Scenario or case study	No	Yes
M	Task set by CACHE (for knowledge learning outcomes)	No	Yes
N	Oral questions and answers	Yes	Yes

* **Expert Witness testimony** should be used in line with the relevant assessment strategy/principles. This method must be used with professional discretion, and only selected when observation would not be appropriate. Those providing an expert witness testimony must be lead practitioners with experience of making judgements around competence. The circumstances that may allow for an expert witness testimony include:

· when assessment may cause distress to an individual, such as supporting a child with a specific need

· a rarely occurring situation, such as dealing with an accident or illness · confidential situations, such as Safeguarding Strategy meetings, where it would be inappropriate for an Assessor to observe the learner's performance.

Assessment strategies and principles relevant to this qualification

The units we offer have been developed in line with the specific **assessment strategies or principles** of different Sector Skills Councils (SSCs), or by us where there is no SSC lead.

The key requirements of the assessment strategies or principles that relate to units in this qualification are **summarised** below. More detailed strategies or principles can be found in **Delivering our Qualifications – Assessment and Internal Quality Assurance Guidance**, which can be found on the secure website.

The Centre needs to ensure that individuals undertaking Assessor or Quality Assurer roles within your Centre conform to the SSC assessment requirements for the **unit** they are assessing or quality assuring.

Requirements for internal quality assurance

All those who internally quality assure this qualification must:

· have up-to-date working knowledge and experience of best practice in assessment and quality assurance

· hold one of the following Assessor qualifications or their recognised equivalent:

- the Level 3 Award in Assessing Competence in the Work Environment, **or**
- the Level 3 Certificate in Assessing Vocational Achievement, **or** - A1 Assess candidate performance using a range of methods, **or** - D32 Assess candidate performance and D33 Assess candidate using differing sources of evidence

· hold one of the following internal quality assurance qualifications or their recognised equivalent:

- the Level 4 Award in the Internal Quality Assurance of Assessment Processes and Practice, **or**
- the Level 4 Certificate in Leading the Internal Quality Assurance of Assessment Processes and Practice, **or**
- V1 Conduct Internal Quality Assurance of the Assessment Process, **or**
- D34 Internally Verify the Assessment Process

· show current evidence of continuing professional development in assessment and quality assurance.

Assessment strategy

Knowledge learning outcomes

· **Assessors** will need to be both occupationally knowledgeable and qualified to make assessment decisions.

· **Internal Quality Assurers** need to be both occupationally knowledgeable and qualified to make quality assurance decisions.

Competence / Skills learning outcomes

· **Assessors** will need to be both occupationally competent and qualified to make assessment decisions.

· **Internal Quality Assurers** will need to be both occupationally knowledgeable and qualified to make quality assurance decisions.

Staffing requirements

Centres delivering any of NCFE's qualifications must:

· have enough appropriately qualified/experienced Assessors to assess the volume of learners they intend to register

· have enough appropriately qualified/experienced Internal Quality Assurers to internally quality assure the anticipated number of Assessors and learners

· ensure that all staff involved in assessment and internal quality assurance are provided with appropriate training and undertake meaningful and relevant continuing professional development

· implement effective internal quality assurance systems and processes to ensure all assessment decisions are reliable, valid, authentic, sufficient, and current. This should include standardisation to ensure consistency of assessment

· provide all staff involved in the assessment process with sufficient time and resources to carry out their roles effectively.

Assessors and Internal Quality Assurance

Staff involved in the Assessment and Internal Quality Assurance of this qualification must be able to demonstrate that they have (or are working towards) the relevant occupational knowledge and/or occupational competence, at the same level or higher as the units being assessed and internal quality assured. This may be gained through experience and/or qualifications.

Section 5: Documents

Useful documents

This section refers to useful documents that can be found on the secure website, some of which may assist with the delivery of this qualification.

· Delivering Our Qualifications – Assessment and Internal Quality Assurance Guidance.

Mandatory documents

The completion of an 'Evidence Record' and 'Record of Assessment Cycle' form is mandatory. We have devised these templates for your convenience; however, you may design your own forms which comply with the content of our templates.

· Evidence Record

· Record of Assessment Cycle.

We have also provided notes to guide you when completing these forms:

· Completing the Evidence Record

· Completing the Record of Assessment Cycle.

The forms and guidance documents are included within **Delivering Our Qualifications – Assessment and Internal Quality Assurance Guidance** on the secure website.

Safeguarding guidance

To support early years settings, the UKCIS Education Working Group has developed two documents to help early years settings managers and staff consider their practice and to take steps to safeguard both children and adults online. To access the documents, please visit: www.gov.uk/government/publications/safeguarding children-and-protecting-professionals-in-earlyyears-settings-online-safety considerations.

Abbreviations.

Actor-Network theory (ANT)

Digital Activity Lead Co-ordinator (DALCo)

Early years (EY)

Early Years Educator (EYE)

Early Years Foundation Stage (EYFS)

Early Years Foundation Stage Profile (EYFSP)

Early Years Practitioner (EYP)

Education Policy Institute (EPI)

English as an additional language (EAL)

Early years care and education (EYCE)

Key Stage One (KS1)

Local Authority (LA)

Multi Agency Safeguarding Hub (MASH)

National Curriculum (NC)

National Health Service (NHS)

Office for Standards in Education, Children's Services and Skills (OFSTED)

Office of Qualifications and Examinations Regulation (OFQUAL)

Physical Activity and Nutrition Co-ordinator (PANCo)

Personal protective equipment (PPE)

Private, voluntary, and independent (PVI)

Socioeconomic status (SES)

Special Educational Needs Co-ordinator (SENCo)

Special Education Needs and Disability (SEND)

Speech, language, and communication (SLC)

Speech, language, and communication needs (SLCN)

References.

Abbott, L. Langston, A. (2005). *Birth to Three Matters: Supporting the Framework of Effective Practice*. London: Open University Press.

Acker, J. Barry, K. Esseveld, J. (1991). *Objectivity and truth; problems in doing feminist research. In: Beyond methodology; Feminist scholarship as lived research*. Bloomington: Indiana University Press.

Albany, S. (2021). *Introduction to Qualitative Research*. [Sound Recording] (University of Suffolk).

Allen, K. Kaestle, C. Goldberg, A. (2011). 'More than just a punctuation mark: How boys and young men learn about menstruation.' *Journal of Family Issues*. Vol 32, p. 129–156.

Alvesson, M. Skoldberg, K. (2000). *Reflexive Methodology. New Vistas for Qualitative Research*. London: Sage.

Akacem, L. Wright, K. Lebourgeois, M. (2018). 'Sensitivity of the circadian system to evening bright light in preschool-age children'. *Physiol Rep*. Vol 6 (5).

Al-Saadi, H. (2014). 'Demystifying Ontology and Epistemology in Research Methods'. [Online]. Available at: https://www.researchgate.net/publication/260244813_Demystifying_Ontology_and_Epistemology_in_Research_Methods [Accessed 5th July 2020].

Andersen, T. Holmström, B. Bengt, Honkapohja, S. Korkman, S. Söderström, H. Vartiainen, J. (2007). *The Nordic Model. Embracing globalisation and sharing risks.* Helsinki: Taloustieto Oy.

Anderson, R. (2016). 'University fees in historical perspective'. [Online]

Available at: http://www.historyandpolicy.org/policy-papers/papers/university-fees-inhistorical-perspective [Accessed 21st November 2020].

Ang, L. (2014). *The Early Years Curriculum. The UK context and beyond*. Oxon: Routledge.

APA. (2019). *Digital guidelines: Promoting healthy technology use for children.* [Online]

Available at: https://www.apa.org/topics/social-media-internet/technology-use-children

[Accessed 9 March 2022].

Apple. (2021). *Buy IPad mini*. [Online]. Available at: https://www.apple.com/uk/shop/buyipad/ipad-mini [Accessed 7 July 2021].

Argos. (2021). *Buy tablets*. [Online]. Available at: https://www.argos.co.uk/search/10-inchcheapest-tablet/category:44612121/opt/sort:price/ [Accessed 7 July 2021].

Arnott, L. (2013). 'Are we allowed to blink? Young children's leadership and ownership while mediating interactions around technologies'. *International Journal of Early Years Education*. pp. 97-115.

Arnott, L. (2016). Lessons from using iPads to understand young children's creativity. *Contemporary Issues in Early Childhood*. Vol 17 (2).

Arnott, L. Palaiologou, I. Collette, G. (2019). 'Digital and multimodal childhoods: Exploration of spaces and places from pedagogy and practice'. *Global Studies of Childhood*. Vol 9 (4).

Arnott, L. Yelland, N. (2020). 'Multimodal Lifeworlds: Pedagogies for Play Inquiries and Explorations'. *Journal of Early Childhood Education Research*, Vol 9 (1), pp. 124–146.

Atkinson, R. (2013). 'Medicine and Law as Model Professions: The Heart of the Matter (and How We Have Missed It)'. *Health Matrix. The Journal of Law-Medicine*. 22 (2). {Online]. Available at: https://scholarlycommons.law.case.edu/healthmatrix/?utm_source=scholarlycommons.law.case.edu%2Fhealthmatrix%2Fvol22%2Fiss2%2F3&utm_medium=PDF&utm_campaign=PDFCoverPages [Accessed 23rd January 2023].

Aubrey, C. (2014). 'The confidence and competence in information and communication technologies of practitioners, parents, and young children in the Early Years Foundation Stage'. *Early Years. An International Journal of Research and Development*. Vol. 34 (1).

Aubrey, C. Dahl, S. (2008). 'A review of the evidence on the use of ICT in the Early Years Foundation Stage'. *BECTA*. [Online]. Available at: https://dera.ioe.ac.uk/1631/2/becta_2008_eyfsreview_report.pdf [Accessed 5th June 2021].

Aull-Davies, C. (1999). *Reflexive Ethnography. A guide to researching selves and others*. London; Routledge.

Ayrton, R. (2018). 'The micro-dynamics of power and performance in focus groups: an example from discussions on national identity with the South Sudanese diaspora in the UK'. *Qualitative Research*. Vol. 19.

Bahn, G. (2020). 'Coronavirus Disease 2019, School Closures, and Children's Mental Health'. *Child Adolescent Psychiatry*. Vol. 31 (2). Pp. 74-9.

Bailey, N. (2012). *Policy based on unethical research. Poverty and Social Exclusion*. [Online] Available at: https://www.poverty.ac.uk/comment/20 [Accessed 3rd August 2020].

Baker, L. Scher, D. Mackler, K. (1997). 'Home and Family Influences on Motivations for Reading'. *Educational Psychologist*. Vol. 32 (2). Pp. 69-82.

Baker, M. (2009). 'Why is primary schooling still based on Victorian policies?'. *The Guardian.* [Online]. Available at: https://www.theguardian.com/education/2009/sep/15/primary-schoolspolicy-history-victorian [Accessed 11th February 2023].

Baker, R. (2012). 'Childcare is not just a woman's job' - why only two per cent of the day nurseries and childcare workforce is male'. *DayNurseries.co.uk.* [Online]. Available at: https://www.daynurseries.co.uk/news/article.cfm/id/1557858/childcare-is-not-just-a-womansjob-why-only-two-per-cent-of-the-day-nurseries-and-childcare-workforce-is-male [Accessed 2nd July 2022].

Barron, M. Cobo, C. Monoz-Najar, A. Sanchez Ciarrusta, I. (2021). 'The changing role of teachers and technologies amidst the COVID 19 pandemic: key findings from a crosscountry study'. *Education for Global Development*. [Online]. Available at: https://blogs.worldbank.org/education/changing-role-teachers-and-technologies-amidstcovid-19-pandemic-key-findings-cross [Accessed 19th February 2023].

Barry, C. (1998). *Choosing Qualitative Data Analysis Software: Atlas/ti and Nudist Compared*. [Online]. Available at: https://doi.org/10.5153%2Fsro.178 [Accessed 12 February 2021].

Basquill, J. (2018). *A Tool not a Substitute: A Multiple Case Study Investigation of Technology Use in the Early Years Foundation Stage*. Lancaster: Lancaster University.

BBC. (2021). *Lockdown 2021: 'It feels like nurseries are an afterthought'*. London: BBC News.

Beck, U. (1986). *Risk Society. Towards a New Modernity.* London: Sage

Becker, H. (2001). Who's Wired and Who's Not: Children's Access to and Use of Computer Technology. *The Future of Children*. Vol. 10 (2).

Beckett, M. (2022). 'History of the internet: a timeline throughout the years'. *Uswitch*. [Online]. Available at: https://www.uswitch.com/broadband/guides/broadband-history/ [Accessed 5th February 2023].

Bedford, R. Urabain, I. Cheung, C. Karmiloff- Smith, A. Smith. T. (2016). Toddlers' Fine Motor Milestone Achievement Is Associated with Early Touchscreen Scrolling, Frontiers in Psychology [Online]. Available at: https://www.frontiersin.org/articles/10.3389/fpsyg.2016.01108/full [Accessed 25th January 2021].

Beech, D. (2020). *No hands up: Rethinking questioning techniques*. [Online]

Available at: https://edu.rsc.org/ideas/10-effective-questioning-techniques/4011025.article

[Accessed 4 March 2021].

Bergmann, J. Meier, C. (2004). 'Electronic Process Data and Analysis'. In: Kardoff, E. Steinke, I. Flick, U. (Eds). *A Companion to Qualitative Research*. London: Sage. Pp. 243247.

Bernanke, B (2018). 'Financial panic and credit disruptions in the 2007-09 crisis' [Online]. Available at: https://www.brookings.edu/blog/ben-bernanke/2018/09/13/financial-panic-andcredit-disruptions-in-the-2007-09-crisis/ [Accessed 22nd June 2022].

BIK. (2020). *COVID-19 – using tech in a positive way*. London: Better Internet for Kids.

Birthtofivematters.org. (2021). *Birth to Five Matters.* London: Early Years Coalition.

Bischoff, J. (2020). *How to manage your kids' screen time during coronavirus.* London: Quartz.

Blackwell, C. Lauricella, A. Wartella, E. Robb, M. Schomburgh, R. (2013). 'Adoption and use of technology in early education: The interplay of extrinsic barriers and teacher attitudes'. *Computers & Education*. Vol. 69 (0). Pp. 310-319.

Block, E. Erskine, L. (2012). 'Interviewing by Telephone: Specific Considerations, Opportunities, and Challenges'. *International Journal of Qualitative Methods*. Vol. 11 (4).

Bolton, G. (2010). *Reflective Practice: Writing & Professional Development*. 3rd ed. London: Sage.

Bond, E. (2014). *Childhood, Mobile Technologies, and Everyday Experiences. Changing Technologies Changing Childhoods*? Hampshire: Palgrave Macmillan.

Bonetti, S. (2018). *The Early Years Workforce: A Fragmented picture*. London: Education Policy Institute.

Bonetti, S. (2019). 'The Early Years Workforce in England; A comparative analysis using the Labour Force Survey'. *Education Policy Institute*.

Bonetti, S. (2022). 'Understanding the Impact of Early Years Funding Shortage'. *Children & Young People Now*. [Online]. Available at: https://www.cypnow.co.uk/analysis/article/understanding-the-impact-of-early-years-fundingshortage [Accessed 10th February 2023].

Boulianne, S. Theocharis, Y (2018). 'Young people, digital media and engagement:

a meta-analysis of research'. *ROAM*. [Online]. Available at: https://roam.macewan.ca:8443/server/api/core/bitstreams/b56dc382-d7fd-4847-bcc8d35985cbd484/content [Accessed 21§st January 2023].

BPS. (2014). *Code of Human Research Ethics*. Leicester: British Psychological Society.

Bradbury, A. (2022). 'FOCUS: What is CPD'? *Early Years Educator*. [Online]. Available at: https://www.earlyyearseducator.co.uk/features/article/focus-what-is-cpd [Accessed 25th January 2023].

Brannigan, A. (1981). *The Social Basis of Scientific Discoveries*. Cambridge: Cambridge University Press.

Braun, V. Clarke, V. (2012). 'Thematic analysis'. In: *APA handbook of research methods in psychology*. American Psychology Association. Pp. 57-71.

Brehm, B. Breen, P. Brown, B. Long, L. Smith, R. Wall, A. Warren, N.S. (2006). 'Instructional design and assessment. An interdisciplinary approach to introducing professionalism'. *American Journal of Pharmaceutical Education*, 70(4), 1-5.

Brierley, J. (2017). 'The role of a pragmatist paradigm when adopting mixed methods in behavioural accounting research'. *International Journal of Behavioural Accounting and Finance*. Vol 6 (2), pp. 140-154.

Britto, P. (2014). *Neuroscience is redefining Early Childhood Development*. London; UNICEF

Britannica (2022). 'Technology' [Online]. Available at: https://www.britannica.com/technology/technology [Accessed 28th November 2022].

Broadfoot, P (2002). Assessment for Learning: 10 Principles. Research-based principles to guide classroom practice Assessment for Learning. [Online]. Available at: https://www.researchgate.net/publication/271849158 [Accessed 22nd June 2020].

Bronfenbrenner, U (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

Bruner, J. (1960). *The process of education. Cambridge*, MA: Harvard University Press.

Buckingham, D. (2000). *After the Death of Childhood: Growing Up in the Age of Electronic Media*. Cambridge; Polity Press.

Bunting, C. (2020). '*Kids are online far more during coronavirus lockdown. Here is a guide to protecting them at each age'*. London: The Telegraph.

Burnett, C (2010). 'Technology and Literacy in Early Childhood Education'. *Journal of Early Childhood Literacy*. Vol 10. (3) pp. 247-270.

Bury, J. Maya, M. Gogescu, F. Bristow, T. Husain, F. (2020). *Ongoing workforce challenges in the early years sector; poor pay, increasing workload and low status*. London: Natcen.

Butler- Kisber, L. (2010). *Qualitative Inquiry. Thematic, Narrative and Arts Based perspectives.* (2nd ed). London: Sage.

Callon, M. (1986). '*Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen'.* In Law, J. (Editor), 'Power, Action, and Belief. A New Sociology of Knowledge?' London: Routledge & Kegan Paul.

CambsEYC. (2023). Cambridgeshire County Council Early Years, Childcare and School Readiness Service. [Online]. Available at: https://www.cambslearntogether.co.uk/cambridgeshire-early-years-and-childcare [Accessed 18th August 2023].

Cannell, C. (1985). 'Interviewing in telephone surveys'. In: T. W. B. &. R. J. Stimson, (ed). *Survey interviewing: Theory and techniques*. Sydney, Australia: Allen & Unwin, pp. 63-84.

Carbonaro, M. Bainbridge, J. (2000). 'Design and development of a process for web-based survey research'. *The Alberta Journal of Educational Research*. Vol. 46 (4), p. 392–394.

Caswell, J. Cramer, M. (2008). 'High Tech or High Risk: Moral Panics about Girls Online'. Digital Youth, Innovation, and the Unexpected. Edited by Tara McPherson. The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning. Cambridge, MA: The MIT Press.

Chalke, J (2013). 'Will the Early Years Professional Please Stand Up? Professionalism in the Early Childhood Workforce in England'. *Contemporary Issues in Early Childhood* Vol. 14 (3).

Cheung, C. Bedford, R. Saez de Urabain, I. Karmiloff- Smith, A. Smith, T. (2017). 'Daily touchscreen use in infants and toddlers is associated with reduced sleep and delayed sleep onset'. *Scientific Reports*. Vol 7.

Chomsky, N. (2000). 'New Directions in the Study of Language and Mind'. Cambridge: CUP.

City & Guilds, 2020. *City & Guilds*. [Online]. Available at: https://www.cityandguilds.com/ [Accessed 13 November 2020].

Christensen, J (2016). 'A Critical Reflection of Bronfenbrenner's Development Ecology Model.' *Problems of Education in the 21st century*. Vol 69. (22).

Clark, J. Febbaro, A. Hatzipantelis, M. (2005). 'Poetry and prose: Telling the stories of formerly homeless mentally ill people'. *Qualitative Enquiry*. Vol .11 (6), pp. 913–932.

Clark, W. Luckin, R. (2013). *What the research says iPads in the classroom*. London: Institute of Education, University of London.

Coad, J. (2007). 'Using art-based techniques in engaging children and young people in health care consultations and/or research'. *Journal of Research in Nursing*. Vol. 22 (5), p. 487–497.

Collins Dictionary (2022) 'Technology'. [Online]. Available at: https://www.collinsdictionary.com/dictionary/english/technology [Accessed 28th November 2022].

Comley, P. (1997). 'The use of the Internet as a data collection method'. *SGA Market Research, Esomar paper.*

Comuk-Balci, N. Bayoglou, B. Tekindal, A. Kerem-Gunel, M. Alnar, B. (2016). 'Screening preschool children for fine motor skills: environmental influence'. *The Journal of Physical Therapy Science*. Vol. 28. Pp.1026–1031.

Conkbayir, M (2022). 'The Neuroscience of the Developing Child. Self-Regulation for Wellbeing and a Sustainable Future'. Oxfordshire; Routledge.

Cook, T. (2012). 'Where Participatory Approaches Meet Pragmatism in Funded (Health) Research: The Challenge of Finding Meaningful Spaces'. *Qualitative Social Research*. Vol 13 (1).

Cooper, H. Hedges, L. (1993). *The Handbook of Research Synthesis*. New York: Russell Sage Foundation.

Corbin, J. Strauss, A. (2008). *Basics of Qualitative Research* 93rd ed). London: Sage.

Cordingley, P; Higgins, S; Greany, T; Buckler, N; Coles-Jordan, D; Crisp, B; Saunders, L; Coe, R. 'Developing Great Teaching: Lessons from the international reviews into effective professional development'. *Teacher Development Trust*. 2015.

Corsaro, W. (2014). *The Sociology of Childhood (Sociology for a New Century Series*). 4th Ed. London; Sage.

CPAG. (2021). 'Child Poverty Facts and Figures'. [Online]

Available at: https://cpag.org.uk/child-poverty/child-poverty-facts-and-figures [Accessed

19 November 2021].

CREC. (2019). A Highly Qualified Workforce? Issues in Professional Development for the Early Years Sector. [Online]. Available at: http://www.crec.co.uk/announcements/highlyqualified-workforce-issues-professional-development-early-years-sector [Accessed 16 April 2021].

Creswell, J. W. (2007). *Qualitative inquiry & research design: Choosing among five approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Creswell, J. (2013). Steppingstones in conducting a scholarly mixed methods study. [Online].

Available at:
https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1047&context=dberspeakers
[Accessed 5th July 2018].

Cristia, J. P; Ibarrarán, P; Cueto, S; Santiago, A; Severín, E. (2012). *Technology and child development: evidence from the One Laptop per Child program*. Working Paper IDB-WP-304. Washington, DC: Inter-American Development Bank.

Crotty, M. (1998). *The Foundations of Social Research: Meaning and Perspective in the Research Process*. London: Sage.

Cunningham, H. (2006). *The Invention of Childhood*. London: BBC Books.

Currie, J. Goodman, J. (2020). 'Parental Socioeconomic Status, Child Health, and Human Capital'. *Scholar. Harvard*. [Online]. Available at:
https://scholar.harvard.edu/files/joshuagoodman/files/parentalses.pdf [Accessed 21st January 2022].

Curtiss, S. (1977). *A Study in Human Capacities: Genie. A Psycholinguistic Study of a Modern-Day "Wild Child*." New York; Academic Press.

Dag, N. Sozer, M. Sel, B. (2015). 'Political Education in School'. *Academic Journals*. Vol 10 (14) Pp 1881- 1887.

Dancheva, M. (2018). Cyber-utopianism. [Online]. Available at: https://prezi.com/p/r34ae4pjattj/cyber-utopianism/ [Accessed 5th July 2020].

Davidson, C. (2012). *Now You See It: How Technology and Brain Science Will Transform Schools and Business for the 21st Century.* New York: Penguin.

Davis, E. (2020). *Born into a digital world*. Early Years Educator. [Online]. Available at:
https://www.earlyyearseducator.co.uk/features/article/born-into-a-digital-world [Accessed 5th June 2021].

Daynurseries.co.uk. (2021). Nursery Nurse & Early Years Practitioner Job Vacancies in the UK Nurseries. [Online]. Available at:
https://www.daynurseries.co.uk/jobs/index.cfm/jobcategory/nurse [Accessed 29 April 2021].

Deering, S. (2016). *How Has the Workplace Changed Over Time?* [Online]

Available at: https://theundercoverrecruiter.com/workplace-evolution/ [Accessed 14 January 2020].

Denscombe, M. (2007). *The Good Research Guide*. 3rd ed. London: Open University Press.

Denzin, N. Lincoln, Y. S. (2005). *The Sage Handbook of Qualitative Research*. (3rd ed). Thousand Oaks, CA: Sage.

DES. (1972). 'Education: A Framework for Expansion' [Online]. Available at: http://www.educationengland.org.uk/documents/wp1972/framework-for-expansion.html [Accessed 21st November 2020].

DES. (1990). 'Starting with Quality' [Online]. Available at: http://www.educationengland.org.uk/documents/rumbold/ [Accessed 21st November 2020].

Dewey, J. (1897). 'My Pedagogic Creed'. *School Journal*. Vol. 54. Pp. 77-80

Dewey, J. (1934). *Art as Experience*. NY: Pedigree.

DfE. (2004). *Every Child Matters*. London: Department for Education.

DfE. (2008). *Early Years Foundation Stage*. London; Department for Education.

DfE. (2012). *Development Matters in the Early Years Foundation Stage (EYFS)*. London: Department for Education.

DfE. (2013). *The National Curriculum in England. Key stages 1 and 2 framework document*. London; Department for Education.

DfE. (2013). *Reform of the National Curriculum in England. London*; Department for Education.

DfE. (2013). *Teachers' Standards Guidance for school leaders, school staff and governing bodies*. London: Department for Education.

DfE. (2017). *Early Years Foundation Stage*. London; Department for Education.

DfE. (2019). *Early Years Foundation Stage Reforms Government consultation*. London; Department for Education.

DfE. (2019). *Survey of Childcare and Early Years Providers: Main Summary, England 2019.* London: Department for Education.

DfE. (2020) *Over 4 in 5 children in England use technology, with a positive link to good memory*. London; Department for Education.

DfE. (2021). *Actions for early years and childcare providers during the COVID-19 pandemic.* London: Department for Education.

DfE. (2021). *Guidance Changes to the early years foundation stage (EYFS) framework*. London; Department for Education.

DfE (2021). *Early years entitlements: local authority funding of providers operational guide 2022 to 2023.* London; Department for Education.

DfE. (2021). *Statutory Framework for The Early Years Foundation Stage (EYFS),* London: Department for Education.

DfE (2021). *Teachers' Standards Guidance*. London; Department for Education.

DfES. (2003). 'Full Day Care. National Standards for under 8s day care and childminding'. *Department for Education and Skills*.

Discoveries, F. (2019). *Child Development Theories; Lev Vygotsky*. [Online]

Available at: https://www.firstdiscoverers.co.uk/lev-vygotsky-child-development-theories/

[Accessed 14 January 2020].

Dowling, M. (2008). 'Reflexivity'. In: L. Given, (ed). *The Sage Encyclopaedia of Qualitative inquiry.* Thousand Oaks, CA: Sage, pp. 747-748.

Dray, S. (2020). Covid-19: Lockdown measures and children's screen time. [Online].

Available at: https://lordslibrary.parliament.uk/covid-19-lockdown-measures-and-childrensscreen-time/ [Accessed 14 July 2021].

Durkheim, E. (1911). 'Education, its Nature and Role'. *Education et sociologie.*

Early Education. (2020). *Early years sector provides crucial help to families in poverty*. [Online]. Available at: https://early-education.org.uk/early-years-sector-provides-crucial-helpto-families-in-poverty/ [Accessed 21st January 2022].

Early Years Workforce Commission. (2021). *A Workforce in Crisis: Saving Our Early Years*.

ECDL. (2014). 'The Fallacy of the 'Digital Native': Why Young People Need to Develop their Digital Skills'. [Online]. Available at: https://ec.europa.eu/futurium/en/system/files/ged/the_fallacy_of_the_digitalnative__ecdl_foundation.pdf [Accessed 5th September 2021].

Education Scotland. (2019). *The national model of professional learning*. [Online]. Available at: https://education.gov.scot/resources/a-national-model-of-professional-learning/ [Accessed 17th August 2023].

Edwards, S. (2003). 'New directions; Charting the paths for the role of sociocultural theory in early childhood education and curriculum'. *Contemporary issues in Early Childhood* Vol 4 (3).

Edwards, S. (2005). 'Research Participation and the Right to Withdraw'. *Bioethics*. Vol. 19 (2).

Edwards, S. Skouteris, H. Rutherford, L. Cutter-Mackenzie, A. (2012). 'It's all about Ben10™children's play, health, and sustainability decisions in the early years'. *Early Child Development and Care*. Vol 183 (2), pp. 280-293.

Elfer, P. Goldschmied, E. (2011) 'Key Persons in the Early Years: Building relationships for quality provision in early years settings and primary schools'. Oxon; Routledge.

Ellis, C. (1995). 'Emotional and ethical quagmires in returning to the field'. *Journal of Contemporary Ethnography*. Vol 24, pp. 68-98.

Erikson, E. (1963). *Childhood and Society* 2nd ed. New York; W.W. Norton & Company.

Erikson Institute. (2016). *Technology and Young Children in the Digital Age*. [online]. Available at: https://www.erikson.edu/wp-content/uploads/2018/07/Erikson-InstituteTechnology-and-Young-Children-Survey.pdf [Accessed 21st February 2021].

Erskine, L. (2012). 'Defining relational distance for today's leaders'. *International Journal of Leadership Studies*. Vol 7 (1), pp. 96-113.

Ertmer, P. (1999). Addressing first- and second-order barriers to change: strategies or technology integration. *Educational Technology Research and Development*. Vol. 47 (4). Pp. 47–61.

Espinosa, L. Laffey, J. Whittaker, T. Sheng, Y. (2010). 'Technology in the Home and the Achievement of Young Children: Findings From the Early Childhood Longitudinal Study'. *Early Education & Development*. Vol 17 (3). Pp 421- 441.

Essex County Council (2023). Training and qualifications. [Online]. Available at: https://eycp.essex.gov.uk/training-and-qualifications/ [Accessed 18th August 2023].

Evans, D. Gruba, P. Zobel, J. (2014). *How to Write a Better Thesis*. 3 ed. London: Springer.

EYA. (2019). *The Early Years Foundation Stage*. [Online]

Available at: https://www.eyalliance.org.uk/early-years-foundation-stage [Accessed

11 December 2019].

EYA. (2021). *Changes to the EYFS 202.* [Online]. Available at: https://www.eyalliance.org.uk/changes-eyfs-2021 [Accessed 17th January 2023].

EYA. (2022). *Too Little, Too Late. SEND funding and the early years sector.* [Online]. Available at: https://www.eyalliance.org.uk/sites/default/files/send_funding_eya_report_final_march_2022_2.pdf [Accessed 10th February 2023].

Frelle-Petersen, C. Hein, A. Christiansen, M. (2020). 'The Nordic social welfare model. Lessons for reform'. Deloitte Insights. [Online]. Available at: https://www2.deloitte.com/content/dam/insights/us/articles/43149-the-nordic-social-welfaremodel/DI_The-Nordic-social-welfare-model.pdf [Accessed 21st March 2022].

Faulder, M. (2018). *Digital Technology: Take control*. [Online]

Available at: https://www.nurseryworld.co.uk/features/article/digital-technology-take-control

[Accessed 7 July 2021].

Faulder, M. (2019). *Digital Technology - Find the way*. [Online]

Available at: https://www.nurseryworld.co.uk/features/article/digital-technology-find-the-way

[Accessed 7 July 2021].

Fawns, T. (2020.) *Explaining and applying a post digital perspective on curriculum design and teaching*. Edinburgh, University of Edinburgh.

Fenwick, T. Edwards, R. (2010). *Actor- Network Theory in Education*. London: Routledge.

Fesmire, S. (2019). *The Oxford Handbook of Dewey*. Oxford: Oxford University Press.

Feranti, S. (2016). *How screen addiction is damaging kids' brains*. [Online]

Available at: https://www.vice.com/en_uk/article/5gqb5d/how-screen-addiction-is-ruining-thebrains-of-children [Accessed 4 June 2019].

Flewitt, R. Cowan, K. (2019). *Valuing Young Children's Signs of Learning: Observation and Digital Documentation of Play in Early Years Classrooms*. London: Froebel Trust.

Flewitt, R. Kucirkova, N. Messer, D. (2014). 'Touching the virtual, touching the real: iPads and enabling literacy for students experiencing disability'. *Australian Journal of Language and Literacy*. Vol 37 (2), pp. 107- 116.

Flick, U. (2018). '*Designing Qualitative Research'*. (2nd Ed.). London; Sage.

Flick, U. Von Kardorff, E. Steinke, I. (2004). *A Companion to Qualitative Research*. London: Sage.

Folkman Curasi, C. (2001). 'A critical exploration of face-to-face interviewing vs. computermediated interviewing'. *International Journal of Market Research*. Vol.43 (4). Pp. 361–375.

Fook, J. (2000). 'Practice Research in Social Work. Postmodern Feminist Perspectives'. London; Routledge.

Formby, S. (2014). 'Practitioner Perspectives; Children's use of technology in the early years'. London: National Literacy Trust.

Foucault, M. (1977). *Discipline and punish. The Birth of the Prison*. London: Penguins Books.

Foulkes, L. (2022). 'Moving beyond 'shopping list' positionality: Using kitchen table reflexivity and in/visible tools to develop reflexive qualitative research. Qualitative Research'. [Online]. Available at: https://eprints.glos.ac.uk/11093/3/10.1177/10.1177/14687941221098922 [Accessed 23rd February 2023].

Foundation Years. (2012). *Birth to Three Matters*. [Online]. Available at: https://foundationyears.org.uk/wp-content/uploads/2012/04/Birth-to-Three-Matter-Cards.pdf [Accessed 15th April 2021].

Foundation Years. (2020). EYFS Reforms webinar. [Online]. Available at: https://foundationyears.org.uk/2019/12/early-years-foundation-stage-reforms-webinar/ [Accessed 16th January 2020].

Franzke, A. Bechmann, A. Zimmer, M. Ess, C. (2020). Internet Research: Ethical Guidelines 3.0. *Association of Internet Researchers.*

Frey, B. (2018). *Sage Research Methods Encyclopaedia*. [Online]. Available at: https://methods.sagepub.com/reference/the-sage-encyclopedia-of-educational-researchmeasurement-andevaluation/i16337.xml#:~:text=The%20pragmatic%20paradigm%20refers%20to,truths%20re garding%20the%20real%20world [Accessed 29 January 2021].

Fuller, R. Petch, A. (1995). *Practitioner Research. The reflexive social worker*. Buckingham: Open University Press.

Gabriel, D. (2013). *Inductive and Deductive Approaches to Research*. [Online]

Available at: https://deborahgabriel.com/2013/03/17/inductive-and-deductive-approaches-toresearch/ [Accessed 29 January 2021].

Galbin, A. (2014). 'An Introduction to Social Constructionism'. *Social Research Reports*. [Online]. Available at: https://www.researchgate.net/profile/Alexandra-Galbin-Damaschin/publication/283547838_AN_INTRODUCTION_TO_SOCIAL_CONSTRUCTIONISM/links/563e436d08ae34e98c4d8ed1/AN-INTRODUCTION-TO-SOCIALCONSTRUCTIONISM.pdf [Accessed 21st January 2023].

Gaunt, C. (2020) 'DfE publishes guidance for early years settings on coronavirus. *Nursery World*. [Online]. Available at: https://www.nurseryworld.co.uk/news/article/dfe-publishesguidance-for-early-years-settings-on-coronavirus [Accessed 21st February 2021].

Gaunt, C. (2020). Low pay forces early years workers to quit jobs they love. *Nursery World*. [Online]. Available at: https://www.nurseryworld.co.uk/news/article/low-pay-forces-earlyyears-workers-to-quit-jobs-they-love [Accessed 21st February 2020].

Gaunt, C. (2021). Coronavirus: Survey reveals 'serious concerns' among early years workers about their safety'. *Nursery World*. [Online]. Available at: https://www.nurseryworld.co.uk/news/article/coronavirus-survey-reveals-serious-concernsamong-early-years-workers-about-their-safety [Accessed 5th February 2021].

Gaunt, C. (2022). 'Early years settings struggle to access funding for rising numbers of young children with SEND'. *Nursery World*. [Online]. Available at: https://www.nurseryworld.co.uk/news/article/early-years-settings-struggle-to-access-fundingfor-rising-numbers-of-young-children-with-send [Accessed 21st February 2023].

George, M. Odgers, C. (2015). 'Seven fears and the Science of How Mobile Technologies May Be Influencing Adolescents in the Digital Age' *Perspectives on Psychological Science*. Vol 10 (6), pp. 832-851.

Giardiello, P. McNulty, J. Anderson, B. (2013). 'Observation, Assessment and Planning Practices in a Children's Centre'. *Manchester Metropolitan University*. [Online]. Available at: https://e-space.mmu.ac.uk/630897/8/Observation%20paper%20accepted.pdf [Accessed 18th February 2022].

Gibbs, G. (1988). *Learning by Doing. A Guide to Teaching and Learning Methods*. Oxford: Oxford Brookes University.

Gibson, J. (1979). *The Ecological Approach to Visual Perception*. Boston: Houghton Mifflin.

Gillard, D. (2018). *Education in England: a history*. [Online]. Available at: www.educationengland.org.uk/history [Accessed 21st November 2022].

Goldblatt, H. (2016). 'From understanding to insight: using reflexivity to promote students' learning of qualitative research. Reflective Practice'. *International and Multidisciplinary Perspectives.* Vol 17 (2).

Goleman, D (1996). *Emotional Intelligence Why it Can Matter More Than IQ*. London; Bloomsbury.

Goode, J. (2019). *Reflexivity in action: journeys through the professional and the personal*. London; Routledge.

Gopnik, A. Choi, S. (1990). Do linguistic differences lead to cognitive differences? A crosslinguistic study of semantic and cognitive development. First Language. Vol 10 (30). [Online]. Available at: https://journals.sagepub.com/doi/10.1177/014272379001003002 [Accessed 15th March 2021].

Goswami, U. (2014). *The Wiley- Blackwell Handbook of Childhood Cognitive Development*. 2nd ed. Oxford: Wiley Blackwell.

Goto, E. (2021). *Technology in the Early Years Foundation Stage?* [Online].

Available at: https://tpea.ac.uk/technology-in-the-early-year-foundation-stage/ [Accessed 9 July 2021].

Gough, D. Thomas, J. Oliver, S. (2012). 'Clarifying differences between review designs and methods'. *Systematic Reviews*, Vol 1. (28) [Online]. Available at: https://doi.org/10.1186/2046-4053-1-28 [Accessed 5th October 2021].

Gov.Scot. (2020). *Scottish Exchange of Data: looked after children*. [Online]. Available at: https://www.gov.scot/publications/scottish-exchange-of-data-looked-after-children/ [Accessed 29 January 2021].

Gov.UK. (2010). *Government announces pupil premium to raise achievement*. [Online]. Available at: https://www.gov.uk/government/news/government-announces-pupil-premiumto-raise-achievement [Accessed 5th October 2021].

Gov.UK. (2021). *National Minimum Wage and National Living Wage rates*. [Online]. Available at: https://www.gov.uk/national-minimum-wage-rates [Accessed 29 April 2021].

Gov.UK. (2022.) *World-first online safety laws introduced in Parliament*. [Online]

Available at: https://www.gov.uk/government/news/world-first-online-safety-laws-introducedin-parliament [Accessed 13 May 2022].

Goyder, J. (1997). 'Technology and Society: A Canadian Perspective'. Toronto; University of Toronto Press.

Grafton-Green, P. (2019). *American parents say their children are developing British accents after watching 'Peppa Pig'*, London: Evening Standard.

Greenbaum, T. (1999). *Moderating Focus Groups*. *A Practical Guide for Group Facilitation*. London; Sage.

Grist, M. (2020). *Technology can support your SLCN strategies – but only if used correctly*. [Online]. Available at: https://www.teachwire.net/news/technology-can-support-youngchildrens-speech-language-and-communication-if [Accessed 7 July 2021].

Groves, R. M. Kahn, R. L. (1979). *Surveys by telephone: A national comparison with personal interviews*. New York: Academic Press.

Guba, E. Lincoln, Y. (1998). Competing paradigms in qualitative research. In: *The Landscape of Qualitative Research.* Thousand Oaks CA: Sage, pp. 195-220.

Hallet, C, Prout, A. (2003). (Eds). *Hearing the Voices of Children. Social Policy for a Nee Century.* Oxon; Routledge Falmer.

Hallet, E. (2012). *The Reflective Early Years Practitioner*. London; Sage.

Handforth, R. Taylor, C. (2016). 'Doing academic writing differently: a feminist bricolage'. *Gender and Education*. Vol 28 (5). Pp. 627-643.

Harlow, H. Dodsworth, O. Harlow, M. (1965). Total social isolation in monkeys. Proceedings of the National Academy of Sciences of the United States of America. [Online]. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC285801/pdf/pnas00159-0105.pdf [Accessed 5th May 2020].

Harper, D. (2011). 'Choosing a qualitative research method', in Harper, D. and Thompson, A. R. (eds.) *Qualitative research methods in mental health and psychotherapy*: Wiley-Blackwell. Pp. 83-98.

Harris, M. (1976). 'History and Significance of the emic/ etic distinction'. *Annual Review of Anthropology.* Vol. 5, pp. 329-350.

Harrison, E. McTavish, M. (2016). 'i'Babies: Infants' and toddlers' emergent language and literacy in a digital culture of iDevices. *Journal of Early Childhood Literacy.* Vol 18 (2).

Hart, C. (2018). *Doing a Literature Review*. 2nd ed. London: Sage.

Hatzigianni, M. Kalaitzidis, I. (2018). 'Early childhood educators' attitudes and beliefs around the use of touchscreen technologies by children under three years of age'. *British Journal of Educational Technology.* Vol 49 (5), pp. 883-895.

He, J. Freeman, L. (2009). 'Are Men More Technology-Oriented Than Women? The Role of Gender on the Development of General Computer Self-Efficacy of College Students'. *Conference: Proceedings of the 15th Americas Conference on Information Systems, AMCIS*. San Francisco, California.

Heale, R. Twycross, A. (2015). 'Validity and reliability in quantitative research'. *Evidence Based Nursing. Vol.* 18 (3), pp. 66-67.

Heath, A. (2017). 'Skills for the Modern Workforce'. *RBA*. [Online]. Available at: https://www.rba.gov.au/speeches/2017/sp-so-2017-12-01.html [Accessed 19th February 2023].

Healthline. (2021). *Too Much Technology: Children Growing Up with Weak Hands, Fingers.* [Online]. Available at: https://www.healthline.com/health-news/too-much-technologychildren-with-weak-hands [Accessed 16 July 2021].

Hedges, H. Cullen, J. (2011). 'Participatory learning theories: a framework for early childhood pedagogy'. *Taylor Francis Online*. [Online]. Available at: https://www.tandfonline.com/doi/abs/10.1080/03004430.2011.597504?role=button&needAccess=true&journalCode=gecd20 [Accessed 8th July 2022].

Heeks, R. (2013). *Actor-Network theory for development*, Manchester: Centre for Development Informatics.

Herman, G. (2007). "*Prince of Networks; Bruno Latour and Metaphysics*". Melbourne; Repress Books.

Heron, J. Reason, P. (1997). 'A Participatory Inquiry Paradigm'. *Qualitative Enquiry*. Vol 3 (3), pp. 274-294.

Hill, A. (2018). *Children struggle to hold pencils due to too much tech, doctors say.* London: The Guardian.

Hoffman, J. Russ, S. (2012). 'Pretend, play, creativity and emotion regulation in children'. *Psychology of Aesthetics, Creativity, and the Arts.* Vol 6 (2), pp. 175-185.

Holden, M. Lynch, P. (2004). 'Qualitative Inquiry and Research Design. Choosing Among Five Approaches'. *The Marketing Review*. Vol 4 (4), pp. 397-409.

Holligan, C. Hanson, L. Henderson, G. Adams, M. (2014). 'The 'Care' of Children in Need in Contemporary Scotland. The Role of Positivism and Performance Indicators in Official Imaginings of Childhood and Wellbeing'. *Scottish Journal of Residential Child Care*. Vol 13 (1).

Holmes, A. (2020). 'Researcher Positionality - A Consideration of Its Influence and Place in Qualitative Research - A New Researcher Guide'. *International Journal of Education*. Vol 8 (4), pp. 1-10.

Holmes, E. Connor, R. Perry, H. Tracey, I. Wessely, S. Arseneault, L. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *The Lancet Psychiatry*. Vol. 547-60.

Holloway, I. Brown, L. (2012). *Essentials of a Qualitative Doctorate*. Oxon: Routledge.

Holloway, S. Valentine, G. (2010). 'On-line Dangers? Geographies of Parents' Fears for Children's Safety in Cyberspace'. *Professional Geographer.* Vol 53 (1) pp. 71-83.

Hosokawa, R. Katsura, T. (2018). 'Association between mobile technology use and child adjustment in early elementary school age'. *Plos One*. [Online]. Available at: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0199959 [Accessed 21st November 2022].

Howard, J. Miles, G. Rees-Davies, L. (2012). 'Computer use within a play-based early years curriculum'. *International Journal of Early Years Education*. Vol. 20 (2). Pp. 175-189.

HTI. (2021). *Spiral Questions*. [Online]. Available at: https://hti.osu.edu/sites/default/files/spiral_questions.pdf [Accessed 4 March 2021].

Hutchby, I. (2001). 'Technologies, Texts and Affordances'. *Sociology.* Vol 35 (2), pp. 441456.

Hutchby, I. Moran-Ellis, J. (2001). 'Introduction. Relating Children technology and culture'. In: *Children, Technology and Culture. The Impacts of Technologies in Children's Everyday Lives*. London: Routledge Falmer.

Hutchin, V. (2022). 'What are "Fundamental British Values"? *Early Years Educator.*

ICan.org. (2021). *I CAN is the children's communication charity*. [Online] Available at: https://ican.org.uk/about-us/ [Accessed 7 July 2021].

ICO. (2018). *Guide to the UK General Data Protection Regulation (UK GDPR)*. [Online]. Available at: https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-thegeneral-data-protection-regulation-gdpr/ [Accessed 5th June 2020].

IFS. (2022). *Schools*. [Online]. Available at: https://ifs.org.uk/education-spending/schools [Accessed 21st November 2022].

IFS. (2020). *Learning during the lockdown: real-time data on children's experiences during home learning*. [Online] Available at: https://ifs.org.uk/publications/14848 [Accessed 14 July 2021].

Jack, C. (2019). *Enhancing the use of Educational Technologies in the Early Years*. Durham: Durham theses, Durham University.

Jack, C. Higgins, S. (2019). *Embedding educational technologies in early years education.* Research in Learning Technology. Vol. 27. [Online]. Available at: https://journal.alt.ac.uk/index.php/rlt/article/view/2033 [Accessed 21st February 2021].

Jackson, R. Drummond, D. Camara, S. (2007). 'What is Qualitative Research'? *Qualitative Research Reports in Communication.* Vol. 8 (1), pp. 21-28.

Jacobson, D. Mustafa, N. (2019). 'Social Identity Map: A Reflexivity Tool for Practicing Explicit Positionality in Critical Qualitative Research'. *International Journal of Qualitative Methods*. Vol 18. Pp.1–12.

Jaggar, M. (1989).' Love and knowledge: Emotion in feminist epistemology'. *Inquiry. Vol* 32 (2), pp. 151- 176.

James, A. Jenks, C. Prout, A. (1988). *Theorizing Childhood.* Cambridge: Polity Press.

Jarrett, C. (2020). *The 10 Most Controversial Psychology Studies ever published*. BPS Research Digest.

Jawad, A. (2021). 'COVID-19: Rationale for keeping early years settings open'. *Foundation Years.* [Online]. Available at: https://foundationyears.org.uk/2021/01/covid-19-rationale-forkeeping-early-years-settings-open/ [Accessed 19th December 2022].

Jefferies, T. (2004). 'All Change'. *Nursery World*. [Online]. Available at: https://www.nurseryworld.co.uk/news/article/all-change-8 [Accessed 3rd February 2023].

Jenks, C. (2005). 'Childhood and Transgression'. *Studies in Modern Childhood*. Pp. 115127.

Jewitt, C. (2006). *Technology, Literacy and Learning. A Multimodal Approach*. London: Routledge.

Johnes, R. Hutchinson, J. (2016). 'Widening the gap? The impact of the 30-hour entitlement on early years education and childcare'. *Education Policy Institute*. [Online]. Available at: https://epi.org.uk/wp-content/uploads/2018/01/widening-the-gap-final-epi.pdf [Accessed 21st February 2022].

Johnson, L. Adams Becker, S. Estrada, V. Freeman, A. Kampylis, P. Vuorikari, R. and Punie, Y. (2014). 'Horizon Report Europe: 2014 Schools Edition.' Luxembourg: Publications Office of the European Union, & Austin, Texas: The New Media Consortium.

Jozwiak, G. (2013). *Anti-ratios campaigning pays off.* London: Children and Young People Now.

Kaiser, K. (2009). 'Protecting Respondent Confidentiality in Qualitative Research'. *Qualitative Health Research*. pp. 1632-1641.

Kardefelt-Winther, D. (2017). *How does the time children spend using digital technology impact their mental well-being, social relationships, and physical activity? An evidencefocused literature review*. [Online]. Available at: https://www.unicefirc.org/publications/pdf/Children-digital-technology-wellbeing.pdf [Accessed 4 June 2019].

Kaushik, V. Walsh, C. (2019). 'Pragmatism as a Research Paradigm and Its Implications for Social Work Research'. *Social Sciences*. Vol 8 (9). P. 255

Kelly, EYC (2015) 'The Importance of a professional Early Years Practitioner'. *Early Years Careers* [Online]. Available at: https://www.earlyyearscareers.com/eyc/latest-news/theimportance-of-a-professional-early-years-practitioner/ [Accessed 28th November 2022].

Kempf, A. Remington, P. 2007. 'New Challenges for Telephone Survey Research in the Twenty-First Century'. *Annual Review of Public Health*. Vol. 28. Pp.113-126.

Kewalramani, S. Arnott, L. Dardanou M. (2020). 'Technology-integrated pedagogical practices: a look into evidence-based teaching and coherent learning for young children'. *European Early Childhood Education Research Journal*, pp. 163-166.

Khloberg, L. (1971). *From is to ought. How to Commit the naturalistic fallacy and get away with it in the study of moral development.* In Theodore Mischel (ed.) [Online]. Available at:

https://archive.org/details/cognitivedevelop0000unse_q9w1/page/151 [Accessed 21st February 2021].

Kimberley, EYC. (2016). 'New guidelines on technology use in the Early Years'. *Early Years Careers*. [Online]. Available at: https://www.earlyyearscareers.com/eyc/latest-news/newguidelines-technology-use-early-years/ [Accessed 21st February 2021].

King, R. Messner, S. Baller, R. (2009). 'Contemporary Hate Crimes, Law Enforcement, and the Legacy of Racial Violence'. *American Sociological Review*. Vol 74, pp. 291-315.

Kinsy, E. Bichard, S. (2011). *Mom! I've seen that on a commercial*! *US preschoolers' recognition of brand logos*. Emerald Insight. Vol 12 (2), pp. 133-144.

Kitchin, R. Thrift, N. (2009). *International Encyclopaedia of Human Geography.* Oxford: Elsevier Ltd.

Kirschner, P and DeBruyckere, P. (2017). 'The myths of the digital native and the multitasker'. *Teaching and teacher education*. Vol 67 pp.135-142 [Online]. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0742051X16306692?via%3Dihub [Accessed 5th September 2021].

Koehler, M. Mishra, P. (2009). 'What is Technological Pedagogical Content Knowledge (TPACK)'? *CITE Journal*. Vol 9 (1).

Kottak, C. (2006). *Mirror for Humanity*. New York: McGraw-Hill.

Kresswell, K. Worth, A. Sheikh, A. (2010). 'Actor-Network Theory and its role in understanding the implementation of information technology developments in healthcare'. *BMC Medical Informatics and Decision-Making* Vol 10.

Krueger, A. Casey, M. (2000). Focus Groups. A Practical Guide for Applied Research. 3rd Ed. London; Sage.

Kukla, A. (2000). *Social Constructivism and the Philosophy of Science*. New York: Routledge.

Kwon, Y. (1999). 'Changing Curriculum for Early Childhood Education in England'. *Early Childhood Research and Practice*, Vol 4 (2).

Kysh, L. (2018). 'What's in a Name? The Difference between a Systematic Review and a literature Review and why it Matters', California: University of Southern California.

Lambert, T. (2021). 'A History of Work'. *Local Histories*. [Online]. Available at: https://localhistories.org/a-history-of-work/ [Accessed 21st February 2023].

Lapelle, N. (2004). 'Simplifying qualitative data analysis using general purpose software tools'. *Field Methods*. Vol, 16 (1), pp. 85-108.

Latour, B. (1987). '*Science in Action: How to Follow Scientists and Engineers through Society*'. Cambridge, MA: Harvard University Press.

Latour, B. (1996). "*Social Theory and the Study of Computerized Work Sites*." In Orlikowski, J. Walsham, G. Jones, M. DeGross, J (Eds), 'Information Technology and Changes in Organizational Work'. London: Chapman & Hall.

Latour, B. (2004). "*Politics of Nature*'. Cambridge, MA; Harvard University Press.

Latour, B. (2005). *Reassembling the Social. An Introduction to Actor Network Theory*. Oxford: Oxford University Press.

Law, J. Hassard, J. (1999). *Actor Network Theory and After*. London: Wiley Blackwell.

Law, J. (2007). *Making a Mess with Method*. In Outhwaite, W. Turner, SP. (Eds). "The Sage Handbook of Social Science Methodology'. London; Sage.

Lawler, R. (2022). 'Half of all children are "not ready to start school", YouGov survey suggests'. *Early Years Alliance*. [Online]. Available at: https://www.eyalliance.org.uk/news/2022/03/half-all-children-are-"not-ready-start-school"yougov-survey-suggests [Accessed 21st February 2023].

Learning Hive (2022). *Digital Poverty and its Impact on Education Inequality*. [Online]. Available at: https://www.learninghive.co.uk/blog/digital-poverty-and-education-inequality [Accessed 25th November 2022].

Lefever, S. Dal, M. Matthíasdóttir, A. (2007). 'Online data collection in academic research: advantages and limitations'. *British Journal of Educational Technology*. Vol. 38 (4), pp. 574582.

Lesley, J. (2019). *Enhancing the use of Ed Tech in the early years*. Durham: Durham University.

Lin, L. Cherng, R. Chen, Y. (2017). 'Effect of Touch Screen Tablet Use on Fine Motor Development of Young Children'. *Physical and Occupational Therapy in Paediatrics*. Vol. 37 (5). Pp. 457-467.

Litosseliti, L. (2003). *Using Focus Groups in Research*. London; MPG Books.

Livingstone, S. Blum-Ross, A. Pavlick, J. Ólafsson, K. (2018). 'In the digital home, how do parents support their children and who supports them'? *Parenting for a Digital Future: Survey Report 1.* Department of Media and Communications, The London School of Economics and Political Science; London.

Livingstone, S. Carr, J. Byrne, J. (2016). *One in Three: Internet Governance and Children's Rights*. Office of Research – Innocenti. Discussion paper 2016-01.

Livingston, S. Zhang, D. (2019). *Inequalities in how parents support their children's development with digital technologies Parenting for a Digital Future: Survey Report 4.* London: London School of Economics.

Lofland, J. Snow, D. Anderson, L. (2006). *Analyzing social setting; A guide to qualitative observation and analysis*. Belmont CA: Wadsworth Thomson.

Lotherington, H. Jenson, J. (2011). 'Teaching Multimodal and Digital Literacy in L2 Settings: New Literacies, New Basics, New Pedagogies'. *Annual Review of Applied Linguistics*. Vol. 31. Pp. 226-246.

Louv, R. (2010). *Last Child in the Woods: Saving our Children from Nature-Deficit Disorder*. North Carolina: Algonquin Books.

Ludgate, S. (2018). *Exploring the affordances of touchscreen technologies in early years settings in the West Midlands*. [Online]

Available at: https://www.researchgate.net/publication/331872663 [Accessed

11 June 2021].

Lundahl, L. (2016). 'Equality, inclusion and marketization of Nordic education: Introductory notes'. *Comparative & International Education*. [Online]. Available at: https://journals.sagepub.com/doi/pdf/10.1177/1745499916631059 [Accessed 21st February 2021].

Macblain, S. (2020). *Child Development for Teachers*. London: Sage.

MacDonald, C. (2021). Young people don't feel they have advanced digital skills for work. *Computerweekly.com* [Online]. Available at: https://www.computerweekly.com/news/252498241/Young-people-dont-feel-they-haveadvanced-digital-skills-for-work [Accessed 5th April 2021].

Magadi, M. Middleton, S. (2007). 'Severe Child Poverty in the UK', *Save the Children*. [Online]. Available at: https://repository.lboro.ac.uk/articles/online_resource/Severe_child_poverty_in_the_UK/9598535 [Accessed 21st March 2020].

Mahadevan, J. (2010). Weak management meant Plymouth nursery was an 'ideal environment' for abuse'. *Children & Young People Now.*

Manyika, J. Lund, S. Chui, S. Bughin, J. Woetzel, J. Batra, P. Ko, R. Sanghvi. S. (2017). 'Jobs lost, jobs gained: What the future of work will mean for jobs, skills, and wages'. *McKinsey Global Institute*. [Online]. Available at: https://www.mckinsey.com/featuredinsights/future-of-work/jobs-lost-jobs-gained-what-the-future-of-work-will-mean-for-jobsskills-and-wages [Accessed 19th February 2023].

Markee, N. (2012). 'Emic and Etic in Qualitative Research'. In: *The Encyclopaedia of Applied Linguistics*. London: Blackwell Publishing.

Marsh, J. (2015.) 'Unboxing' videos: co-construction of the child as cyberflaneur Discourse'. *Studies in the Cultural Politics of Education*. Vol 37, pp. 369-380.

Marsh, J. (2016). 'The digital literacies and skills of children of preschool age'. *Media Education Studies and Research*. Vol 7 (2), pp. 197-214.

Marsh, J. Bishop, J. (2014). *Changing Play: Play, Media, and Commercial Culture from the 1950S To the Present Day*. London; Open University Press.

Marsh, J, Hannon, P. Lewis, M. Ritchie, L. (2015). 'Young children's initiation into family literacy practices in the digital age'. *Journal of Early Childhood Research*, 15 (1). [Online].

Available at: https://journals.sagepub.com/doi/10.1177/1476718X15582095 [Accessed 22nd September 2021].

Marsh, J. Kontovourki, Safa, E. Salomaa, S. (2017). Developing Digital Literacy in Early Years. Settings: Professional Development Needs for Practitioners. A White Paper for COST Action. [Online]. Available at: https://link.springer.com/article/10.1007/s10639-019-10047-9 [Accessed 21st February 2021].

Marsh, J. Plowman, L. Yamada-Rice, D. Bishop, J. Lahmar, J. Scott, F. (2018). 'Play and Creativity in young children's use of apps'. *British Journal of Educational Technology*, 0(0). [Online]. Available at: https://bera-journals.onlinelibrary.wiley.com/doi/full/10.1111/bjet.12622 [Accessed 5th September 2021].

Martimianakis, M. Maniate, J. Hodges, D. (2009) 'Sociological interpretations of professionalism'. *Medical Education* 2009, 43: 829–837. Available at: https://pubmed.ncbi.nlm.nih.gov/19674298/ [Accessed 19th January 2023].

Martin, J. (2020). *Kids spent over 9 hours on screens during lockdown*. [Online].

Available at: https://www.techadvisor.com/news/security/kids-spent-over-9-hours-onscreens-during-lockdown-3796986/ [Accessed 14 July 2021].

Martin-Denham, S. Watts, S (2019) 'The SENCO Handbook. Leading Provision and Practice'. London; Corwin.

Martland, R. (2020). *All you need to know about CPD in early years*. [Online]. Available at: https://kinderly.co.uk/2020/03/05/all-you-need-to-know-about-cpd-in-early-years/ [Accessed 17th august 2023].

Mason, C. (2022). 'Morally wrong to cut education spending, Tory MPs warn'. *TES Magazine*. [Online]. Available at: https://www.tes.com/magazine/news/general/morallywrong-cut-education-spending-tory-mps-warn [Accessed 12th November 2022].

Maxwell, J. (1996). *Qualitative Research Design; An Interactive Approach*. Thousand Oaks, CA: Sage.

McGrath, D. (2022). 'Early years facing 8% fall in funding by 2024, warns IFS'. *The Independent*. [online]. Available at: https://www.independent.co.uk/news/uk/ifsconservatives-kevin-courtney-government-bridget-phillipson-b2222747.html [Accessed 5th February 2023].

McLean, C. Hassard, J. (2004). 'Symmetrical absence/symmetrical absurdity: Critical notes on the production of actor network accounts'. *Journal of Management Studies* Vol, 41 (3). Pp.493–519.

McLendon, J. (2011). *Jean Piaget; Cognitive Development in the Classroom*. [Online]

Available at: https://www.funderstanding.com/educators/jean-piaget-cognitive-developmentin-the-classroom/ [Accessed 1 November 2019].

Mcleod, S. (2008). Erik Erikson [Online]. Available at: http://msdilalloscience.weebly.com/uploads/6/9/6/2/6962884/erik_erikson_by_saul_mcleod.pdf [Accessed 5th September 2021].

McWhinney, J. (2022). 'The Nordic Model: Pros and Cons'. *Investopedia*. [Online]. Available at: https://www.investopedia.com/articles/investing/100714/nordic-model-pros-and-cons.asp [Accessed 23rd January 2022].

Mertala, P. Koivula, M. (2020). Digital Technologies and Early Childhood: Guest Editorial. *Journal of Early Childhood Education Research*. Vol 9 (1), pp. 1-5.

Merton, R. (1975). 'Thematic analysis in science: notes on Holton's concept'. *Science as a Culture.* Vol. 188. Pp. 335-338.

Mettion, R. (1999). 'The Riddle of Things; Activity, theory, and Actor-Network Theory as approaches to studying innovations' *Mind, Culture and Activity*. Vol. 6 (3). Pp. 170-195.

Meyer, D. Avery, L. (2009). 'Excel as a qualitative data analysis tool. *Field Methods*. Vol. 21 (1), pp. 91-112.

Miles, B. Huberman, A. (1994). *Qualitative Data Analysis*. 2nd ed. London: Sage.

Miller, T. Birch, M. Mauthner, M. Jessop, J. (2012). *Ethics in Qualitative Research*. 2nd ed. London: Sage.

Mises, L. (2010). *Human Action A treatise on Economics.* USA: Yale University Press.

Moberg, E. (2017). 'Breakdowns, Overlaps and Ambivalence. An Actor-Network Theory study of Swedish Preschool Curriculum'. Stockholm University.

Molloy, S. (2019). *Younger generations are growing horns in the back of their head*. [Online]

Available at: https://www.news.com.au/technology/science/human-body/youngergenerations-are-growing-horns-in-the-back-of-their-head/newsstory/246c5dfb45d39c8200c9052b4a841c6e [Accessed 2 July 2019].

Morgan, D. (2014). 'Pragmatism as a Paradigm for Social Research'. *Qualitative Inquiry*. Vol 20 (8), pp. 1045-1053.

Morris, P. (2016) *Groups of kids 'Go viral' for playing on their smartphones in the middle of a museum*. [Online]. Available at: https://littlethings.com/lifestyle/smartphone-museum-truth [Accessed 21st May 2022].

Morton, K. (2022). 'New DfE research emphasises the impact of Covid on early years sector'. *Nursery World*. [Online]. Available at: https://www.nurseryworld.co.uk/news/article/new-dfe-research-emphasises-the-impact-ofcovid-on-early-years-sector [Accessed 21st February 2023].

Moshin, A. (2016). *A Manual for Selecting Sampling Techniques in Research*. Karachi: Munich Personal RePEc Archive.

Moss, P. (2014). 'Early childhood policy in England 1997–2013: anatomy of a missed opportunity'. *International Journal of Early Years Education*. Vol 22 (4).

MTCT. (2021). *Questioning Techniques. Asking Questions Effectively*. [Online]

Available at: https://www.mindtools.com/pages/article/newTMC_88.htm [Accessed

4 March 2021].

Mumtaz, S. (2000). 'Factors affecting teachers' use of information and communications technology: a review of the literature'. *Journal of Information Technology for Teacher Education*. Vol. 9 (3). Pp. 319-342.

Mutzel, S. (2009). 'Networks as Culturally Constituted Processes: A Comparison of Relational Sociology and Actor-network Theory'. *Current Sociology* Vol 57 (6), pp. 871–887.

Murray, J. McDowall, R. (2017). *Special Report. Research Early Learning and School Readiness*. London: CYP Now.

NAHT. (2017). *School Ready? A survey of school leaders by NAHT and Family and Childcare Trust.* [Online]. Available at: file:///C:/Users/05365/Downloads/School%20ready%20report%20(2).pdf [Accessed 15 January 2020].

NCFE CACHE, 2019. *CACHE Early Years Educator*. [Online]

Available at: https://www.cache.org.uk/our-qualifications-and-services/early-years-educator

[Accessed 23 December 2019].

NCFE CACHE, 2019. Qualhub. [Online]

Available at: https://www.qualhub.co.uk/qualification-search/qualification-detail/level-3diploma-for-the-early-years-workforce-early-years-educator-49 [Accessed 14 January 2020].

NCS. (2021). *Nursery worker Alternative titles for this job include Nursery assistant, early years educator, pre-school assistant, playgroup assistant, childcare worker*. [Online]

Available at: https://nationalcareers.service.gov.uk/job-profiles/nursery-worker [Accessed 28th April 2021].

Nelson, C. Fox, N. Zeanah, C (2014). *Romania's Abandoned Children*

Deprivation, Brain Development, and the Struggle for Recovery. Cambridge MA; Harvard University Press.

Neumann, M. Neumann, D. (2014). 'Touch Screen Tablets and Emergent Literacy'. *Early Childhood Educational Journal.* Vol 42 (4), pp. 231-239.

Newmann, F. M. (1996). Authentic achievement: Restructuring schools for intellectual quality. San Francisco, CA: Jossy-Bass.

NHS (2022) *Nursery Nurse and Nursery Assistant*. [Online]. Available at: https://www.healthcareers.nhs.uk/explore-roles/wider-healthcare-team/roles-widerhealthcare-team/corporate-services/nursery-nurse-and-nursery-assistant/nursery-nurse-andnursery [Accessed 18th December 2022].

Norbury, C. Gooch, D. Wray, C. Baird, G. Charman, T. Simonoff, E. Vamvakas, G. Pickles, A. (2016). 'The impact of nonverbal ability on prevalence and clinical presentation of language disorder: evidence from a population study'. *Journal of Child Psychology & Psychiatry*. Vol. 57, p. 1247–1257.

Norris, S. (2022). 'Spending on Early Years Support Halved Under Successive Conservative Led Governments'. *By Line Times*. [Online]. Available at: https://bylinetimes.com/2022/07/19/spending-on-early-years-support-halved-undersuccessive-conservative-led-governments/ [Accessed 10th February 2023].

NSPCC. (2020). *Coronavirus (COVID-19) and parents working from home*. London: NSPCC.

Nursery World. (2018). Nursery World. [Online]. Available at: https://www.nurseryworld.co.uk/news/article/dfe-sets-out-new-criteria-for-level-2-early-yearsqualifications [Accessed 13 November 2020].

Nutbrown, C. (2012). '*Foundations for Quality*'.

Nutbrown, C. Clough, P. Selbie, P. (2008). *Early Childhood Education: History, Philosophy and Experience.* London; Sage.

Nutkins, S. McDonald, C. Stephen, M. (2013). *Early Childhood Education and Care, an Introduction*. London: Sage.

Nye, D. (2007) 'Technology Matters: Questions to Live With'. Cambridge, MA; MIT Press.

OFCOM. (2017). 'Children and Parents: Media Use and Attitudes Report, 2017', London; OFCOM.

OFCOM. (2021). 'Children and parents: Media use and Attitudes Report 2020/21', London; OFCOM.

Office for National Statistics. (2019). *Long-term trends in UK employment: 1861 to 2018.* [Online]. Available at: https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economicreview/april2019/longtermtrendsinukemployment1861to2018. [Accessed 21st February 2020].

OFSTED. (2020) *COVID-19 series: briefing on early years, October 2020*. Gov.UK.

OFSTED. (2022). *Best Start in Life. Part 1. [*Online]. Available at: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjzjPTin-X8AhWsQEEAHY29DxkQFnoECBYQAQ&url=https%3A%2F%2Fwww.gov.uk%2Fgovernment%2Fpublications%2Fbest-start-in-life-a-research-review-for-early-years%2Fbest-start-inlife-part-1-setting-the-scene&usg=AOvVaw3OxnQ9HT3SU84_2qKU_PuR [Accessed 25th January 2023].

OFSTED. (2022). *Education recovery in early years providers: spring 2022*. Gov.UK.

Oakley, A. (1981). 'Interviewing Women; a Contradiction in terms'. In: *Doing Feminist Research*. London: Routledge and Keegan Paul, pp. 30-61.

O'Malley, B. (2018). 'How the decision to triple tuition fees changed history'. *University World News*. [Online]. Available at: https://www.universityworldnews.com/post.php?story=20180407044722981 [Accessed 21st January 2020].

Ormston, R. Spencer, L. Barnard, M. Snape, D. (2014). The foundations of qualitative research. In: J. Ritchie, J. Lewis, C. Nicholls & R. Ormston, eds. *Qualitative Research Practice: A Guide for Social Science Students and Researchers.* Los Angeles: Sage, pp. 125.

Osborne, H. (2011). Childcare costs stopping mothers going to work, says study'. *The Guardian* [Online]. Available at: https://www.theguardian.com/money/2011/aug/31/childcarecosts-stopping-mothers-working [Accessed 21st November 2020].

Osburn, H (2014). *Radio in the 1920s* [Online]. Available at: https://historicgeneva.org/recreation/radio-in-the-1920s/ [Accessed 21st January 2021].

Outhwaite, L. Faulder, M. Gulliford, A. Pitchford, N. J. (2018). 'Raising Early Achievement in Math with Interactive Apps: A Randomized Control Trial.' *Journal of Educational Psychology*. Vol 11 (2) pp. 284–298.

Oxtoby, K. (2023). 'Reduction in energy support raises childcare funding fears'. *Early Years Educator*. [Online]. Available at: https://www.earlyyearseducator.co.uk/news/article/reduction-in-energy-support-raiseschildcare-funding-fears [Accessed 10th February 2023].

PACEY. (2016). *Supporting children to use technology safely*. Bromley: PACEY.

Palmer, N. (2016). 'Essentialism. It Is What It Is and That's That'. *Sociology in Focus*. [Online]. Available at: https://sociologyinfocus.com/essentialism-it-is-what-it-is-and-thats-it-2/ [Accessed 21st January 2023].

Papert, S. (1980). *Mindstorms. Children, Computers and Powerful Ideas*. New York; Basic Books.

Parenta. (2013). 'Nursery Comment: Staff Ratios'. *Parenta.* [Online]. Available at: https://www.parenta.com/2013/01/31/nursery-comment-staff-ratios/?print=pdf [Accessed 16th March 2021].

Parry, B. (2018). '12 reasons to let your children play video games this Christmas', [Online]. Available at: https://theconversation.com/twelve-reasons-to-let-your-children-play-videogames-this-christmas-108366 [Accessed 21st September 2021].

Parry, B. (2020). 'Feminist research principles and practices'. *Online Readings in Research Methods.* [Online]. Available at: https://www.psyssa.com/wpcontent/uploads/2020/04/Chapter-5_Feminist-research-principles-and-practices.pdf [Accessed 21st February 2022].

Parson, J. Letherby, G. (2020). 'Introduction to creative and collaborative approaches to research and practice with a social and criminal justice focus'. *Methodological Innovations*. Vol. 13 (2).

Pasupathi, M. (2001). 'The Social Construction of the Personal Past and Its Implications for Adult Development'. *Psychological Bulletin*. Vol. 127 (5). Pp. 651-672.

Patel, S. (2014). A Guide to Coding Qualitative Data. [Online]

Available at: http://salmapatel.co.uk/academia/coding-qualitative-research/ [Accessed

12 February 2021].

Paulus, T. Lester, J. Dempster, P. (2014). *Digital Tools for Qualitative Research*. London: Sage.

Payscale. (2021). Average Hourly Rate for LIDL UK GMBH Employees in United Kingdom. [Online]. Available at: https://www.payscale.com/research/UK/Employer=LIDL_uk_gmbh/Hourly_Rate [Accessed 10 June 2021].

Phippen, A. (2017). 'Online technology and very young children: Stakeholder responsibilities and children's rights'. *International Journal of Birth and Parent Education*. Vol 5 (1).

Phippen, A. Bond, E (2019). 'Digital Ghost Stories; Impact, Risks and Reasons'. *SWGFL* [Online]. Available at: https://swgfl.org.uk/research/digital-ghost-stories-impact-risks-andreasons/ [Accessed 5th March 2020].

Phippen, A. Bond, E. (2020). *Organisational Responses to social media Storms*. London: Palgrave MacMillan.

Piaget, J. (1936). *Origins of Intelligence in the Child*. London: Routledge and Keegan Paul.

Piaget, J. (1964). 'Cognitive Development in Children; Piaget'. *Journal of Research in Scientific Teaching*, Vol 2, pp. 176- 186.

Pinch, T. Bijker, W. (1987). *The social construction of facts and artifacts: Or how the sociology of science and the sociology of technology might benefit each other.* In 'The social construction of technological systems: New directions in the sociology and history of technology,' Bijker, W. Hughes, T. Pinch, T. (Eds). Pp.17-50. Cambridge, MA: MIT Press.

Plowman, L. McPake, J. (2013). 'Seven Myths About Young Children and Technology'. *Childhood Education* Vol 89 (1), pp. 27-33.

Plowman, L. McPake, J. Stephen, C. (2010). 'The technologisation of childhood? Young children and technology in the home'. *Children and Society*, Vol 24 (1), pp. 63-74.

Plowman, L. Stephen, C. (2005). 'Children, play and computers in pre-school education'. *British Journal of Educational Technology.* Vol 36 (2), pp. 145-157.

Plowman, L. Stevenson, O. McPake, J. Stephen, C. Adey, C. (2011). 'Parents, pre-schoolers and learning with technology at home: some implications for policy'. *Journal of Computer Assisted Learning*. Vol 27, pp. 361-371.

Plummer, K. (1983). *Documents of life; An introduction to the problems and literature of a humanistic method*. London: George Allen & Unwin.

Postman, N. (1995). *The Disappearance of Childhood*. London: Vintage Books.

Prensky, M. (2001). 'Digital Natives, Digital Immigrants'. *On the Horizon MCB University Press*, Vol 9 (5). Available at: https://www.marcprensky.com/writing/Prensky%20%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf [Accessed 2nd September 2021].

Price, H. (2009). *The Really Useful Book of ICT in the Early Years*. London; Routledge.

Price, H. (2017). Continuous Provision for Technology. [Online].

Available at: https://www.tts-group.co.uk/blog/2017/04/25/continuous-provisiontechnology.html [Accessed 16 July 2021].

Prout, A. (2005). *The Future of Childhood*. Oxon: Routledge.

Prout, A. (2011). 'Taking a Step Away from Modernity: reconsidering the new sociology of childhood'. *Global Studies of Childhood*. Vol 1(1).

Przybylski, A. Weinstein, N. (2017). 'A Large-Scale Test of the Goldilocks Hypothesis: Quantifying the Relations Between Digital-Screen Use and the Mental Well-Being of Adolescents'. *Psychological Science*. Vol 2.

Punch, F. (2011). *Introduction to Research Methods on Education*. London: Sage Publishing.

Purtill, C. (2020). *Do screen time rules still apply in lockdown?* London: BBC.

Puwar, N. (1997). 'Reflections on Interviewing Women MPs'. *Sociological Research Online*. Vol. 2, No. 1.

QAA. (2019). *Subject Benchmark Statement Early Childhood Studies*. QAA.

QCA. (2000). *Curriculum Guidance for the Foundation Stage*. London: Qualifications and Curriculum Authority.

Raddon, A. (2020). *Early-Stage Research Training: Epistemology & Ontology in Social Science Research*. Leicester: University of Leicester.

Rambathla, S. Rao, V. (2013). '70 Foreign Accent Syndrome (FAS) in Association with Autistic Spectrum Disorder (ASD)'. A New Syndrome? *British Medical Journal*. Vol. 98.

Rasinen, A. (2003). 'An Analysis of the Technology Education Curriculum of Six Countries'. *Journal of Technology Education*. Vol 15 (1).

Regnault, A. Willgoss, T. S, B. (2018). 'Towards the use of mixed methods inquiry as best practice in health outcomes research'. *Journal of Patient Reported Outcomes*. Vol. 2 (19).

Relan, J. (2018). *Full Facts* [Online]. Available at: https://fullfact.org/law/legal-age-limits/ [Accessed 12th April 2020].

Rich, PJ. Browning, SF. Perkins, M. Shoop, T. Yoshikawa, E Belikov, OM. (2019) 'Coding in K-8: international trends in teaching elementary/primary computing'. *TechTrends*. Vol 63, (3). Pp. 311-329.

Rice, R; Haythornthwaite, C. (2006). Perspectives on internet use: Access, involvement, and interaction. In L. Lievrouw & S. Livingstone (Eds.), *Handbook of new media: Social shaping and consequences of ICTs* (pp. 92-113). (2nd Ed.). London: Sage.

Rix, J. Parry, J. (2014). 'Without foundation: the EYFS framework and its creation of needs'. In: *Early Years Foundations: Meeting the Challenge* (2nd ed). Maidenhead: Open University Press, pp. 203-214.

Robins, A. Callan, S. (2009) 'Managing Early Years Settings'. London; Sage.

Rogers, S; Brown, C; Poblete, X. (2017) *A systematic review of the evidence- base for professional learning in early years education* (the PLEYE review). London; Nuffield Foundation.

Rooney, D. (1997). 'A Contextualising, Socio-Technical Definition of Technology. Learning from Ancient Greece and Foucault'. *Prometheus*.

Rorty, R. (1982). *Consequences of Pragmatism*. Minnesota: University of Minnesota Press.

Roth, R. Abraham, J. Zinzow, H. Wisniewski, A. Chalil Madathil, K. (2020). 'Evaluating News Media Reports on the 'Blue Whale Challenge' for Adherence to Suicide Prevention Safe Messaging Guidelines'. *Proceedings of the ACM on Human-Computer Interaction*. Vol. 4. (26). Pp 1–27.

Ryan, T. (2005). *When you reflect are you also being Reflexive?* Ontario: Nipissing University.

Ryans.world. (2021). *Channels in the Ryan's World Universe*. [Online] Available at: https://ryans.world/characters/ [Accessed 15 July 2021].

Sakr, M. (2018). 'Multimodal participation frameworks during young children's collaborative drawing on paper and on the iPad'. *Thinking Skills and Creativity*. Vol 29, pp. 1-11.

Sakr, M. (2020). *Digital Play in Early Childhood. What's the Problem?* (1st ed). London: Sage.

Sakr, M. Scollan, A. (2019). 'The screen and the sand-timer: The integration of the interactive whiteboard into an early years free-flow learning environment'. *Journal of Early Childhood Research.* Vol 17(3), pp. 190-204.

Salazar, K. Morgan, K. (2019). 'Children's Exposure to Digital Technology Causes Parental Anxiety'. *Nelson Norman Group.* [Online]. Available at: https://www.nngroup.com/articles/parental-anxiety/ [Accessed 21st May 2021].

Saldana, L. (2013). "*The Coding Manual for Qualitative Researchers"*. London; Sage.

Sang, V. Valcke, M. vann Braak, J. Tondeur, J. Zhu, C. (2011). 'Predicting ICT integration into classroom teaching in Chinese primary schools: Exploring the complex interplay of teacher-related variables'. *Journal of Computer Assisted Learning*. Vol. 27. Pp. 160-172.

Sanitaria, G. (2021). 'Childhood, families, and the Internet: a qualitative approach on health assets'. *Science Direct*, Vol 35, pp. 236-242.

Sayeed, Z. Guerin, E. (2000). *Early Years Play. A Happy Medium for Assessment and Intervention*. London: David Fulter Publishers.

SCAA. (1996). 'Nursery education: Desirable outcomes for children's learning on entering compulsory education' London: SCAA and Department for Education and Employment.

Schon, D. (1983). *The Reflective Practitioner. How Professionals think in Action*. Oxon: Routledge.

Scott, G. (2021). 'Starmer; Every Child will leave Education "Ready for Work" after Labour Reforms. *Evening Standard*. [Online]. Available at: https://www.standard.co.uk/news/uk/labour-keir-starmer-brighton-b957289.html [Accessed 5th February 2022].

Scott, W. (2015). 'EYFS Best Practice: A short history of ... Early education'. *Nursery World*. [Online]. Available at: https://www.nurseryworld.co.uk/features/article/eyfs-best-practice-ashort-history-of-early-education [Accessed 1st May 2022].

Schutz, A. (1962). *Collected Papers I: The Problems of Social Reality*. The Hague: Martinus Nijhoff.

Seidel, J. (1991). 'Method and Madness in the Application of Computer Technology to Qualitative Data Analysis'. In: N. Fielding, R. Lee. (Eds). *Using Computers in Qualitative Research*. London: Sage.

Selwyn, N. (2011). *Schools and Schooling in the Digital Age. A Critical Analysis*. Oxon; Routledge.

Selwyn, N. (2012). *Education and Technology; Key Issues and Debates*. London; Continuum International Publishing Group.

Selwyn, N. (2012). *Education in a Digital World; Global Perspectives on Technology and Education*. New York; Routledge.

Selwyn, N. (2016). *Is technology good for Education*? Cambridge; Cambridge Polity Press.

Selwyn, N. (2017). *Education and Technology. Key Issues and Debates*. Vol 2. London; Bloomsbury Academic.

Selwyn, N. (2019). *Should Robots Replace Teachers? AI and the Future of Education.* Cambridge; Cambridge Polity Press.

Senge, P. (2018). 'Education to meet Societal Needs'. *Erudito World Academy*. [Online]. Available at: http://eruditio.worldacademy.org/volume-2/issue-4/article/education-meetsocietal-needs [Accessed 21st February 2023].

Seymour, V. (2016). *The Human–Nature Relationship and Its Impact on Health: A Critical Review*. [Online]. Available at: https://www.frontiersin.org/articles/10.3389/fpubh.2016.00260/full [Accessed 25th July 2021].

Sharma, G. (2017). 'Pros and cons of different sampling techniques'. *International Journal of Applied Research.* Vol. 3 (7), pp. 749-752.

Shenton, A. (2004). 'Strategies for ensuring trustworthiness in qualitative research projects'. *Education for Information*. Vol 22, pp. 63-75.

Shinn, M. Rapkin, B. (2000). 'Cross- level Research without Cross-Ups in Community Psychology.' In: *Handbook of Community Psychology*. New York: Clewer Academic.

Sibley, S. (2004). 'Designing Qualitative Research Projects'. In *Workshop on scientific foundations of qualitative research*. P.121. Washington, DC: National Science Foundation.

Silverman, D. (2010). *Doing Qualitative Research*. 3rd ed. London: Sage.

Sim, J. Waterfield, J. (2019). Focus group methodology: some ethical challenges. *Qual Quant.* Vol. 53, pp. 3003- 3022.

Siraj-Blatchford, J. (2003). *More than ICT; Information and communication technology in the early years.* 2 ed. London; Early Education.

Siraj-Blatchford, J. (2015). 'Is it time to remove ICT from the Early Learning Goals'? *Early Years Educator.* Vol 17 (8). Pp. 18-20.

Siraj-Blatchford, J. Manni, L. (2004). 'Good question'. *Nursery World*. [Online]. Available at: https://www.nurseryworld.co.uk/news/article/good-question [Accessed 5th February 2022].

Sleigh, S. (2021). *Nursery workers feel 'abandoned' by Government after schools ordered to close*. London: Evening Standard.

Smahel, D. Machackova, H. Mascheroni, G. Dedkova, L. Staksrud, E. Ólafsson, K. Livingstone, S. and Hasebrink, U. (2020). 'EU Kids Online 2020: Survey results from 19 countries'. *EU Kids* [Online]. Available at; https://doi.org/10.21953/lse.47fdeqj01ofo [Accessed 21st September 2021].

Smidt, S. (2009). *Introducing Vygotsky. A Guide for Practitioners and Students in Early Years Education.* Oxon: Routledge.

Smidt, S. (2011). *Introducing Bruner. A guide for practitioners and students in early years education*. Oxon: Routledge.

Smith, E. Kahlke, R. Judd, T. (2018). 'From digital natives to digital literacy: Anchoring digital practices through learning design'. *Research Repository*. [Online]. Available at: https://researchrepository.murdoch.edu.au/id/eprint/59155/1/ASCILITE-2018Proceedings-Final.pdf#page=512 [Accessed 2nd March 2021].

Smith, J. Pike, I. Brussoni, M. Tucker, L. Masse, L. Mah, J. Boudreau, A. Mount, D. Bonaguro, R. Glegg, S. Amed, S. (2019). 'Mixed methods study exploring parent engagement in child health research in British Columbia'. *BMJ Open*. [Online]. Available at: https://bmjopen.bmj.com/content/9/5/e025404 [Accessed 21st June 2020].

Smith, S. Burrow, L. Fite, K. Guerra, L. (2016). 'Considering Instructional Appropriateness of Technology Integration into Early Childhood Education'. *International Journal of the Whole Child. Vol* 1 (2).

Snape, D. Spencer, L. (2003). 'The foundations of qualitative research'. In: J. Ritchie, Lewis & J, eds. *Qualitative Research Practice*. Lois Angeles: Sage, pp. 1-23.

Snyder, D (2023). 'Digital Media: Definition and Examples'. *Copypress*. [Online]. Available at: https://www.copypress.com/kb/content-marketing/digital-media-definition-and-examples/ [Accessed 21st January 2023].

Sorensen, E. (2009). 'The Materiality of Learning. Technology, and Knowledge in Educational Practice'. Cambridge, MA; Cambridge University Press.

Spanswick, E. (2016). *Technology in the early years: A help or a hindrance*? [Online]

Available at: https://www.daynurseries.co.uk/news/article.cfm/id/1573510/technology-a-helpor-hindrance-in-early-years [Accessed 12 July 2021].

Soble, A. (1978). *Deception in Social Science Research; Is informed consent possible?* Hastings Centre.

Soiferman, L. (2010). Compare and Contrast Inductive and Deductive Research Approaches. [Online]. Available at: https://files.eric.ed.gov/fulltext/ED542066.pdf [Accessed 22nd June 2020].

Sosik, J. J. Kahai, S. S. Avolio, B. J. (1998). Transformational leadership and dimensions of creativity: Motivating idea generation in computer-mediated groups. *Creativity Research Journal*. Vol. 11 (2), pp. 111-121.

Stewart, K. (2013). *Labour's Record on the Under Fives: Policy, Spending and Outcomes 1997 – 2010.* London: London School of Economics.

Stewart, K. (2015). *The Coalition's Record on the Under Fives: Policy, Spending and Outcomes 2010-2015*. London: LSE.

Stewart, D. Shamdasani, P. Rook, D. (2007). *Focus Groups. Theory and Practice*. London; Sage.

Stirling, E. Selwyn, N. (2018). *Social Media and Education. Now the Dust has Settled*. Oxfordshire; Taylor Francis.

St John, W. Lee Johnson, P. (2000). 'The pros and cons of data analysis software for qualitative research'. *Journal of Nursing Scholarship*. Vol. 32 (4), pp. 393-7.

Stone, J. (1996). 'Developmentalism: An Obscure but Pervasive Restriction on Educational Improvement'. *Education Policy Analysis Archives* Vol 4 No 8.

Strathern, M. (1996). 'Cutting the Network'. *Journal of Royal Anthropological Institute*. Vol. 2 (3). Pp. 517-535.

Strauss, A. Corbin, J. (1990). *Basics of Qualitative Research. Grounded Theory Procedures and Techniques.* London: Sage.

Strouse, G. A. Ganea, P. A. (2017). 'Parent–toddler behavior and language differ when reading electronic and print picture books'. Frontiers in Psychology, Vol 8, Article 677 [Online]. Available at: https://psycnet.apa.org/record/2017-26358-001 [Accessed 25th January 2021].

Sue, V. Ritter, L. (2014). *Conducting Online Surveys*. (2nd Ed). London; Sage.

Suffolk.Gov. (2020). *Customer First* (Social Services). [Online]

Available at: https://infolink.suffolk.gov.uk/kb5/suffolk/infolink/advice.page?id=NYFIzl7NuJU

[Accessed 28 July 2020].

Suffolk Learning (2022). *Training, qualifications & how to apply*. [Online]. Available at:

https://suffolklearning.com/early-years/training-and-qualifications/ [Accessed 18th August

2023].

Tang, J. (2015). Family Socioeconomic Status and Personal Media Technology Use. Tenysee, USA. [Online]. Available at: https://jewlscholar.mtsu.edu/server/api/core/bitstreams/370e43ef-eba3-4737-a5b20439c530eab9/content [Accessed 21st June 2021].

Tarasuik, J. Demaria, A. Kaufman, J. (2017). 'Transfer of Problem-Solving Skills from Touchscreen to 3D Model by 3- to 6-Year-Olds'. Front Psychol. Vol 8 (1586) [Online]. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5611486/ [Accessed 21st January 2021].

Tariq, S. Wodman, J. (2013). 'Using mixed methods in health research'. *Journal of the Royal Society of Medicine*. Vol 4 (6).

Tassoni, P. (2010). *Continued Success with the EYFS*. Harlow: Heinemann.

Tatnall, A. (2002). 'Actor-Network Theory as a Socio-Technical Approach to Information Systems Research'. In *Socio-technical and Human Cognition Elements of Information Systems* (2003) London; InfoSCL. pp. 266-285

Taylor, A. (2002). 'I'll call you back on my mobile: A critique of the telephone interview with'. *Westminster Studies in Education*. Vol 25 (1), pp. 19-34.

Taylor, R. (2021). 'Covid-19: impact on child poverty and on young people's education, health and wellbeing'. *UK Parliament*. [Online]. Available at: https://lordslibrary.parliament.uk/covid-19-impact-on-child-poverty-and-on-young-peopleseducation-health-and-wellbeing/ [Accessed 21st January 2022].

Taylor, S. Bogdan, R. DeVault, M. (2016). *Introduction to Qualitative Research Methods: A Guidebook and Resource*. 4th ed. New Jersey: Wiley.

Teater, B. (2015). *Social Work Theory*. [Online]

Available at: https://www.sciencedirect.com/topics/psychology/developmental-theory [Accessed 5th April 2020].

Teich, A. (1997). 'Technology and the Future'. New York; St. Martin's.

Terrell, S. (2012). 'Research Methods- Research Methodologies'. *The Qualitative Report*. Vol. 17 (1), pp. 254-280.

TES. (2021). *The last 'normal' school year is a distant memory*. [Art] (TES).

The Autism Service. (2019). *Does my Child Show Symptoms of Autism?* [Online]

Available at: https://www.theautismservice.co.uk/news/does-my-child-show-symptoms-ofautism/ [Accessed 15 July 2021].

The Grocer. (2021). *Aldi raises minimum hourly pay to £9.55 nationally and £11.07 in London*. [Online]. Available at: https://www.thegrocer.co.uk/pay/aldi-raises-minimum-hourlypay-to-955-nationally-and-1107-in-london/652242.article [Accessed 10 June 2021].

The Guardian. (2020). *Why you shouldn't get salty if your child 'speaks YouTube'*. London: The Guardian.

Tickell, C. (2011). *The Early Years: Foundations for Life, Health, and Learning*. London: Department for Education.

Tobin, G. Begley, C. (2003). 'Methodological rigour within a qualitative framework'. *Advanced Nursing*. Vol 48)4) pp. 388-396.

Treadaway, M. (2015). 'Pupil premium isn't working… or is it'? *FFT Education Data Lab*. [Online]. Available at: https://ffteducationdatalab.org.uk/2015/03/pupil-premium-isnt-workingor-is-it/ [Accessed 21st January 2022].

Trucano, M. (2005). *Knowledge Maps: ICTs in Education - What do we know about the effective uses of information and communication technologies in education in developing countries?* infoDev/World Bank: Washington.

Truss, E. (2013). *More Great Childcare. Raising Quality and Giving Parents more Choice.* London: Department for Education.

Tse, A.C.B. (1999). 'Conducting electronic focus group discussions among Chinese respondents'. *Journal of the Market Research Society*. Vol.41 (4). Pp. 407–415.

Tulley, R. (2008). 'Is There Techne in My Logos? On the Origins and Evolution of the Ideographic Term—Technology'. The International Journal of Technology, Knowledge and Society. Vol 4 (1). [Online]. Available at: https://www.researchgate.net/profile/Ron-Tulley/publication/256739352_Is_There_Techne_in_My_Logos_On_the_Origins_and_Evolution_of_the_Ideographic_Term-Technology/links/00463523b1cab1519d000000/Is-ThereTechne-in-My-Logos-On-the-Origins-and-Evolution-of-the-Ideographic-Term-Technology.pdf [Accessed 21st January 2023].

Tweddle, L. (2008). 'The Birth of the NHS – July 5th 1948'. *Nursing Times*. [Online]. Available at: https://www.nursingtimes.net/archive/the-birth-of-the-nhs-july-5th-1948-08-012008/ [Accessed 21st February 2023].

Twigg, S. (2013). *Child safety is at risk from chaotic plan for nursery staff to look after more toddlers.* London: Mail Online.

Twinkl. (2022). *What are INSET days*? [Online]. Available at: https://www.twinkl.co.uk/teaching-wiki/inset-days#:~:text=INSET%20(In%2Dservice%20Education%20and,staff%20to%20complete%20certain%20tasks. [Accessed 17th August 2023].

UNICEF. (2017). *The State of the World's Children 2017. Children in a Digital World*. [Online]. Available at: https://www.unicef.org/media/48601/file [Accessed 17th January 2023].

UNICEF. (2019). *Convention on the Rights of the Child*, Ghana: Recupere.

UNICEF, 2020. *Children at increased risk of harm online during global COVID-19 pandemic.* [Online]. Available at: https://www.unicef.org/press-releases/children-increased-risk-harmonline-during-global-covid-19-pandemic [Accessed 23 May 2020].

Vangrieken, K; Meredith, C; Packer, T; Kyndt, E. (2017). *Teacher communities as a context for professional development: A systematic review.* Teaching and Teacher Education Vol. 61 Pp. 47-59.

Vaportzis, E. Giatsi Clausen, M. Gow, A. (2017). 'Older Adults Perceptions of Technology and Barriers to Interacting with Tablet Computers: A Focus Group Study'. *National Library of Medicine*. [Online]. Available at: https://pubmed.ncbi.nlm.nih.gov/29071004/ [Accessed 29th April 2022].

Vekiri, I. (2009). Socioeconomic differences in elementary students' ICT beliefs and out-of-school experiences. *Computers & Education*. Vol. 54. Pp. 954- 950.

Veraksa, N. Veresov, N. Sukhikh, V. (2022). 'The play matrix: a tool for assessing role-play in early childhood'. *International Journal of Early Years Education.* Taylor Francis. Vol. 30. Pp. 542-559.

Voogt, J. McKnney, S. (2016). *TPACK in teacher education: are we preparing teachers to use technology for early literacy?* [Online]. Available at: http://dx.doi.org/10.1080/1475939 [Accessed 13 May 2021].

Vyas, K. (2018). *11 Most Controversial Psychological Experiments in History*. [Online]

Available at: https://interestingengineering.com/11-most-controversial-psychologicalexperiments-in-history [Accessed 3 August 2020].

Wall,S. Litjens. Taguma, M (2015) Early Childhood Education and Care Pedagogy Review England. OECD. [Online]. Available at: https://www.oecd.org/unitedkingdom/early-childhoodeducation-and-care-pedagogy-review-england.pdf. [Accessed 20th January 2023].

Walsh, D. (2005). 'Developmental theory and early childhood education. Necessary but not sufficient.' In: *Critical Issues in Early Childhood Education*. Berkshire: Open University Press, p. 40.

Walsham, G. (1997). '*Actor-Network Theory and IS Research: Current Status and Future Prospects*'. New York; Springer.

Warschauer, M; Ames, M. (2010). Can One Laptop Per Child Save The World's Poor? *Journal of International Affairs.* Vol. 64, no. 1, pp. 33-51.

Waterson, J. (2019). 'Viral 'Momo challenge' is a malicious hoax, say charities'. *The Guardian*. [Online]. Available at:" https://www.theguardian.com/technology/2019/feb/28/viralmomo-challenge-is-a-malicious-hoax-say-charities [Accessed 5th March 2020].

Watt, N. (2013). *Nursery ratios: Clegg blocks Tory attempt to relax childcare standards.* London: The Guardian.

Wenger, E. (1998). *Communities of practice: Learning, meaning and identity*. New York, NY: Cambridge University Press.

Whitebread, D. Coltman, P. (2008). *Teaching and Learning in the Early Years*. 3rd ed. Oxon: Routledge.

Whitehead, M. Taylor-Robinson, D. Barr, B. (2021). 'Poverty, health, and covid-19'. *British Medical Journal*. Vol. 372 (376).

Withersey, M. (2021). *Technology Development Matters! How Computing can begin in the revised Early Years Foundation Stage*. [Online]

Available at: https://enabling-environments.co.uk/2021/06/10/technology-in-the-revisedearly-years-foundation-stage/ [Accessed 16 July 2021].

Whitters, H.G. (2017) *Nursery Nurse to Early Years' Practitioner: Role, Relationships and Responsibilities*, Taylor & Francis Group. ProQuest Ebook Central, https://ebookcentralproquest-com.uos.idm.oclc.org/lib/ucsl/detail.action?docID=4856317

WHO. (2019). *To grow up healthy, children need to sit less and play more.* [Online]. Available at: https://www.who.int/news/item/24-04-2019-to-grow-up-healthy-children-needto-sit-less-and-play-more [Accessed 21st February 2020].

Willard, C. (2013). *Summary: Ian Hutchby's "Technology, Texts and Affordances*". [Online]

Available at: https://newmediagenres.org/2013/01/21/group-3-summary-technology-textsand-affordances/ [Accessed 22 November 2021].

Wilson, C. Janes, G. Williams, J. (2022). 'Identity, positionality and reflexivity: relevance and application to research paramedics'. *British Paramedic Journal*. [Online]. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9662153/ [Accessed 5th January 2023].

Wilson, E. (2021). 'Re-thinking Employability. Preparing young people for the future of work'. *FE News* [Online]. Available at: https://www.fenews.co.uk/exclusive/re-thinkingemployability-preparing-young-people-for-the-future-of-work/ [Accessed 11th April 2020].

Wilson, S. (2022). *What is the Social Construction of Health and Illness*? [Online]. Available at: https://appliedworldwide.com/what-is-the-social-construction-of-health/ [Accessed 18th February 2023].

Woodhead, M. Dornan, P. Murray, H. (2014). 'What inequality means for children: evidence from Young Lives', *International Journal of Children's Rights*, Vol 22 (3) pp 467-501.

Woods, J. (2023). *10 Gadgets Every 2000s Kid Was Obsessed With.* [Online]. Available at: https://screenrant.com/most-popular-2000s-gadgets-kids-wanted/#the-nintendo-ds-becamethe-most-popular-handheld-ever [Accessed 19th February 2023].

Worcestershire County Council. (2020). '*Early Years New Bulletins'*. [Online]. Available at: https://www.worcestershire.gov.uk/downloads/file/15811/early_years_bulletin_192__10_june_2022 [Accessed 5th February 2021].

Wyllie, A. (2021). 'Experts says parents shouldn't post new school uniform photos online'. *Devon Live*. [Online]. Available at: https://www.devonlive.com/news/devon-news/expertssays-parents-shouldnt-post-5890929 [Accessed 16th May 2022].

Ye, J. (2007). *Overcoming Challenges to Conducting Online Surveys*. IGI Global.

Yelland, N. (2018). A pedagogy of multiliteracies: young children and multimodal learning with tablets. *British Journal of Educational Technology*. Vol 49 (5) pp. 847-858.

Yelland, N. Gilbert, C. (2017). *Re-Imagining Play with New Technologies' in Arnott, L (eds). (2017) "Digital technologies and learning in the early years*. London: Sage.

Yelland, N. Lee, L. O' Rouke. M. Harrison, C. (2008). *Rethinking Learning in Early Childhood Education.* Berkshire: Open University Press.

Young, R. Collins, A. (2004) 'Introduction: Constructivism and social constructionism in the career field'. *Journal of Vocational Behaviour*. Vol 64, (3). Pp. 373-388

Young Minds. (2021). 'The impact of Covid-19 on young people with mental health needs'. *Young Minds*. [Online]. Available at: https://www.youngminds.org.uk/about-us/reports-andimpact/coronavirus-impact-on-young-people-with-mental-health-needs/. [Accessed 9th October 2021].

Zur, O. Zur, A. (2012). *On Digital Immigrants and Digital Natives: How the Digital Divide Affects Families, Educational Institutions, and the Workplace*. [Online]. Available at: https://www.google.com/search?client=safari&rls=en&q=On+Digital+Immigrants+and+Digital+Natives%3A+How+the+Digital+Divide+Affects+Families%2C+Educational+Institutions%2C+and+the+Workplace%2C&ie=UTF-8&oe=UTF-8 [Accessed 23rd April 2020].