

Promoting children's digital literacy and supporting parents/ carers in safeguarding them whilst using digital devices to access the internet



(Source: Fatima, 2020)

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Due to children's rising use of technology, Organisation for Economic Co-operation and Development (OECD) (2019: 4) has placed concerns of its effects on their 'brains, bodies and socio- emotional, cognitive and physical development'.

Digilitey (2018) believe whilst new technology and digital devices on one hand support children with engaging learning experiences, it also causes concern for isolation in unhealthy interactions and consumption of devices causing negative impacts to them.

According to Barr et al. (2010) due to the limited programme content for children under 2 the effects on cognitive development is considered harmful, particularly for their language and decision-making abilities. Therefore, the television acts as background noise, research has shown to affect 12- 24-month-old children's play quality and limits parent-child interactions compared to the tv being turned off (Daniel and Anderson, 2017). Also, Sigman (2012) discuss a study carried out on children 5-6 years of age which showed passive television exposure led to sleep difficulties and shortened sleep duration. The amount of time children spend whilst engaged in devices may impact melatonin production, the sleep hormone according to (OECD, 2019) but also the type of device used. A study found social media, phones and gaming show the largest effects on sleep according to (Arora et al. 2014). Therefore suggesting, parents should reduce children's exposure to TV, especially before bedtime.

Pempek (2014) state the negative effects of language development for young children due to limited communication between the parent and child. As Daniel and Anderson (2017) point out, parent interaction has a large effect on children's development and their uses of digital devices have an impact on their child. As Radesky (2014) states parents using mobiles has a large impact on the quality of their engagement with children as it is very distracting and limits interaction.

Chaudron (2015) highlight children are able to access the media through growing up in homes where most have a variety of digital devices readily available, they learn through observation of family members or peers and can quickly acquire basic operational skills. Although they may not be fully competent readers, they are able to rely on their recognition of logos and images allowing them to search and find their way through a

device Chaudron (2015). Face to face interactions and communication is very important for language development and it is a worry for many that children are experiencing less of this due to digital devices (Gilmartin, 2019). However, it is believed if the media is used appropriate it can encourage children's communication development and help children with speech and language difficulties (Gilmartin, 2019). The National Literacy Trust (2014) research showed children being shown both hard copy and digital device stories, children had better vocabulary development than just looking at printed stories. This suggests, using everything in moderation and the ability digital devices have in supporting language and communication development, as well as printed stories and face to face interaction (Gilmartin, 2019).

Yolanda et al. (2016) believe for toddlers accessing technology at the young age of 12-24 months, it is crucial that adult interaction is used alongside to scaffold the child's learning. For example, DeLoache (2010) suggests if children are learning from videos to support their vocabulary of different words it is very important that adults watch these videos with them to reteach words and reinforce the learning through repetition. Digilitey (2018) and Barr et al. (2008) feel young children are able to benefit from digital devices when they have their parent's active engagement to talk and take part in the learning experience. This links to Vygotskys Zone of Proximal Development (ZPD) where a child is not able to finish something completely by themselves without the help of someone who is more capable (Shabani, 2010). However, 'this may create a divide between high and low socio- economic status families and the time available to give to children' (Shabani, 2010:5). The Canadian Paediatric Society (2017) suggest parents who are able to give their children more time scaffolding their experiences with screens may benefit more than households with limited financial resources and parents who are not involved as much in daily activities.

Children as young as two and under, research shows how competent and able such young children are in using digital devices by observing screen- based communication, swiping touch screen surfaces and accessing digital games (Harrison and McTavish, 2018; O' Connor, 2017).

However, according to Chaudron (2015) children become limited when they reach beyond their capability of cognitive development whilst using a digital device, which leads to risks when they cannot fully distinguish between real and unreal information. However, Garvis and Lemon (2015) believe technology values largely depend on the user's experience. It depends on the parent/ teacher or care giver to use their initiative to create an interactive experience for creativity (Garvis and Lemon, 2015). Fidler et al. (2010) state there is evidence which shows parent interaction and co-viewing with their children increases engagement.

Odom et al. (2015) highlight the beneficial use of technology in supporting children with a range of individual learning needs. The technology- aided interventions that are now available show the power and effectiveness new technology has on children who have additional learning needs, providing them with resources enabling inclusiveness (Odom et al. 2015). There is research to support social media's use in social inclusion and peer connection who may otherwise feel excluded (Dickins et al. 2016). This provides advantages of avoiding stigma and increasing social networks, learning from peers online. However, this leads to the risks of exposure to misinformation and unhealthy influences leading to the vulnerability of children (Chassiakos et al. 2016). According to, the European Union (2010) technology can promote social inclusion and reduce social gaps increasing people's quality of life. However, the more reliant people become on technology uses in everyday lives, it is important that those with learning difficulties have access to the same technology (Manzoor and Vimarlun, 2018). Due to the rapid rate of technology devices there is becoming an opportunity to include new approaches to facilitating learning difficulties (Owuor et al. 2017).

The world children are growing up in is becoming heavily reliant on technology and digital devices to support all aspects of people's lives and therefore need to gain new skills of reading, directing and contributing in a digitally mediated environment (Marsh, 2010; Berson and Ilene, 2010; Palaiologou, 2016a).

According to Blake and Pope (2008) Piaget believed people have to adapt to their environment and as Formby (2014) and Yolanda et al. (2016:14) state 'in the UK, nearly three quarters of children aged three to five have access' to a digital device at home,

therefore it is important there is support available to protect young children. The Digital Competence Framework (DCF) Hwb (2019) recognises the importance of enabling children appropriate digital skills and knowledge to be competent in today's society. The DCF, Hwb (2019) believes by supporting children's digital confidence they will become creative and critical thinkers to thrive in a digital world. This supports article 3 of the UNCRC 'The best interests of the child must be a top priority in all decisions and actions that affect children' (Unicef, no date: 1). However, according to O'Connor (2017) it has been criticised of the lack of implementation of the UNCRC regarding the internet. 5 rights (2020) believe age makes children and young people vulnerable, however there is no observation of their rights in the digital world. The Byron Review, NSPCC (2017) gave 38 recommendations to improve digital safety, and only 13 of these have been implemented which shows how much more needs to be done to the make the digital world safer for children.

According to Chaudron (2015) a study carried out showed children under the age of 8 were unaware of what online means, and the risks or benefits linked. Most children viewed digital devices as fun, entertaining and show little to no perception of the risks of being online, despite some of the children already viewing inappropriate age content or issues with pop up and app purchases (Nikken and Hann, 2015). Also, Chaudron (2015) noted the easy, versatile use of smartphones and with children accessing parent's devices for various different reasons is creating an increased risk of problematic experiences with pop ups, in app purchases and perhaps no child safety leading to a range of different internet searches and links. However, according to Ofcom (2018) research shows 97% of parents of children ages 3-15 are controlling their children's online access with pins, rules or talking with their child about online safety and awareness. Ofcom (2019) shows that one in five children believe everything google says online. This links to the cultivation theory, with digital devices effecting people's perceptions, beliefs and attitudes and due to children's naivety due to their age, this makes them vulnerable (Shrum, 2017). Therefore, internet safety and keeping children safe online is essential to protect them from potential dangers (Ofcom, 2019).

Unicef (2017) state some of the issues of concern with children's use of digital devices due to the encouragement of anti-social behaviour negatively impacting their social development, exposure to inappropriate content and harming physical effects due to children's persistent digital use. However, according to Verenikina (2010) Vygotsky believed learning was socially constructed and therefore learning what is needed in order to contribute within their society through interacting with cultural tools which are mediated by peers and adults is important. Verekinikina (2010: 4) state, 'In the 21st century these cultural tools include digital as well as paper-based communication and information tools, artefacts, and media'.

According to Sigman (2012) a study was carried out showing that children between the ages of one to three were at a significant higher risk of developing attention problems by the time they were seven. Children's brains change due to different experiences and environmental influences. Research has shown the rapid growth of development and plasticity in the brains of new-borns up to the first three years of their life (Petanjek et al. 2011). For children under two years old, the American Academy of Paediatrics (2011) do not encourage exposure to digital devices and would recommend children over this age should be restricted to two hours per day of technology entertainment. However, more than 60% of children under the age of three are using digital devices (Palaiologau, 2016b). According to Palaiologau (2016b) traditionally people believed children were only able to do one thing at a time, however in a study carried out it showed 20% of children three and under showed multitasking abilities whilst using technology.

Ofcom (2018) research on media use shows 69% of children ages 3-4 years old use a tablet to go online. Ofcom (2018) research also shows children's TV viewing has reduced by 2 hours per week since 2016. However, this is due to children accessing different types of TV services, such as Netflix. The Barb data shows that although children are not watching as much live TV, there is an increase in watching TV on demand or catch up (Ofcom, 2018). Tomopoulous (2011) believes this is due to technology being used more due to increasing media content aimed towards infants and toddlers, which is being marketed as educational, therefore including a younger age bracket with programmes directed towards them.

Children are also using technology to enhance their social relationships (Unicef, 2017). However, Turkle (2011) argues children interact more with digital devices than each other. It is a concern according to George and Odgers (2015) due to the importance of lifelong social skills and development, they may be negatively affected when using digital media. However, Boyd (2014) and Slutsky et al. (2014) believe children are still interacting together the same as before, but are using these devices with each other.

Ways to support and safeguard children when accessing digital media and ICT.

Ofcom...

Ofcom (2019) regulates telecommunications and have a duty to protect children from harmful content on TV, radio and on demand.

Children becoming competent users of the internet

Research findings by Ofcom (2019: 2) shows, 'In the United Kingdom, the most recent figures show that 52% of 3 to 4-year-olds and 82% of 5-7 year-olds are online.'

According to the UK Council for Child Internet Safety (UKCCIS) (2018) children are growing up in a digital world, and therefore it is important to understand the benefits technology provides but also to develop a critical awareness of the risks and practices to stay safe in their online behaviour.

A term used by Ofcom (2019: 14) 'Critical understanding' with digital literacy is important for children so they are able to 'understand, question and manage their media environment'. This allows children to experience the benefits the internet offers and hopefully prevent possible risks.

Ofcom (2015) and the NSPCC (2017) believe it is important for parents to address the risks of media use by;

- discussing with children how they may become exposed to online harmful behaviour and ways this can be avoided
- supervising internet interaction
- incorporating rules such as; where and how long they can use the internet for
- safety tools to filter internet sites which children should not be accessing.

Safeguarding children's internet use

According to Get Safe Online (no date) children are naturally curious and love to explore, however it is important to put measures in place and to be pro- active in ensuring online safety. Due to the ease and availability of smart phones and tablets, it is becoming harder for parents/ carers to monitor online behaviour all of the time.

Research carried out by Takeuchi (2011) and Vaala and Hornik (2014) suggests whilst parents may feel media use gives opportunities for relaxation and learning.

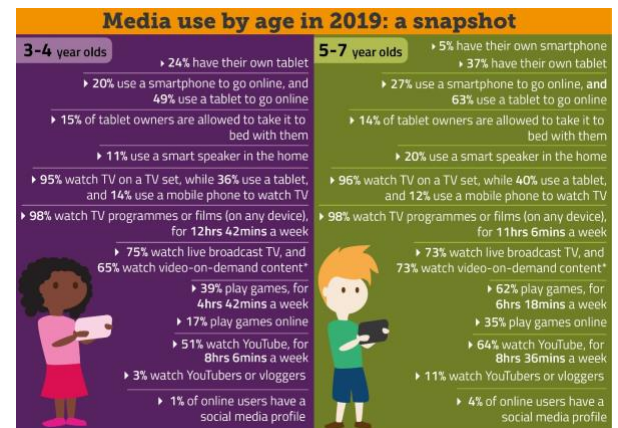
Duimel and Meijering (2013) research shows it also concerns many parents about their child's health and development, but also social aspects of family time.

Parental controls

Parent Port (2011) discuss parental controls are available to help limit children's access to unsuitable internet content protecting them from potential dangers.

Internet matters (no date) says controls can also set time limits and apply age restrictions for certain games.

The websites at the end of the leaflet has useful information on how to set up parental controls on different devices.



(Source: Ofcom, 2019C; 5)

Accessing inappropriate content- useful ways to approach the topic

Internet matters (no date) advise the following;

- Talking about possible content children may see that is not suitable
- Discussing age restrictions and the reasons- they are to protect them from unsuitable content
- Ask other parents for advice/ recommendations
- Agree suitable websites and apps

Screen time

According to Organisation for Economic Co-operation and Development (OCED) (2019) there is a lot of fear surrounding the amount of screen time that is considered 'acceptable' and the worry of technology rewiring children's brains.

However, Mills (2014) believe whilst technology does impact children, it is unlikely it will have considerable brain effects or rewiring outcomes.

Przybylski and Weinstein (2017) describe the "Goldilocks Effect" which feels children should have a moderate engagement with digital screens as it benefits mental well-being and connectedness, however, having too little or too much time may prove harmful.

Research carried out by Anderson and Subrahmanyam (2017) suggests the following;

- Limit screen time for young children to less than 1 hour per day
- Include screen free times during daily routines
- An hour before time, try to avoid screens and encourage face to face interaction.

Cyberbullying- using digital devices and the internet to intentionally upset someone else. (Department for Schools Children and Families (DCSF) 2007)

According to Chassiakos et al. (2016) cyberbullying has become a worrying issue of accessing the internet for parents, as children are vulnerable to bullying at any time of the day and people can remain anonymous.

According to Moreno (2014) studies show interventions that target bullying may help to reduce cyberbullying.

Parents can play a role in bullying interventions by;

- Talking to their children about appropriate online behaviours
- Talk little and often children about children's friendships/ relationships to develop open communication.

How much is too much?

Research carried out by Garrison and Christakis (2012) suggests increased screen time before bed and the volume of digital devices links to sleeping problems, and access to devices in children's bedroom is also linked to less sleep.

Recommendations

It is advised by Paediatric Child Health (2017:9) parents to try and model good technology behaviours and healthy screen habits by:

- When around children, reducing screen use, particularly during family social times, such as meal-times which are valuable for social learning
- 'choose when to use media together, and turn of screens when they are not in use
- Prioritise interactions with children through conversation, play and health active routines.'

(Source: online sense, 2016)



If there is a concern of cyberbullying, the NSPCC (2017) provides further information of support and advice lines.

Physical development

Anderson and Hanson (2010) believe quality content of digital media can help to encourage physical movement, especially for 3-year olds and over, where it is designed to be fun, engaging and encourages them to imitate and participate.

Hingle and Kunkel (2012) research states although pro-longed use does link to its risks of over-weight and obesity in young children and TV adverts for unhealthy foods and snacking lead to unhealthy habits of increased food intake.

Linebarg and Vaala (2010) believe suitable, age appropriate digital media can be beneficial for young children as it can act as an additional learning tool, supporting early language development.

It also supports areas of cognitive development and can develop positive racial attitudes and imaginative play.

Although, Christie (2012) and Hobbs (2010) says devices should not replace parent and child interaction, as children learn intensely through face to face communication.

Research findings by Erikson institute (2016) say to support children by;

- Promoting learning
- Build relationships through good communication and understanding of one another
- Model healthy habits
- View screens together, guiding children towards meaningful content.



(Source: Dreamstime, 2020)

Some useful sources for more information:

UK Safe Internet Centre: <https://www.saferinternet.org.uk/advice-centre/parents-and-carers>

National Society for the Prevention of Cruelty to Children (NSPCC): <https://www.nspcc.org.uk/keeping-children-safe/online-safety/>

Internet Matters: <https://www.internetmatters.org/resources/staysafestayhome-tech-advice-for-families/>

Activity Plan		
Activity: exploring wildlife using digital devices, uploading and information finding/ sharing to draw pictures and write sentences.		
Number of children: 8	Age of children: 5	Number of adults: 2 plus a 1 to 1 assistant.
Location: Inside and Outside	Preparation time: 15minutes	Activity time: 1.5 hours
Resources: • iPad x3 • binoculars x2 • magnifying glass x8 • paper • pens • computer • interactive whiteboard • printer • tracing paper • spelling words on paper		
Aims of activity: The activity is child- led allowing children to make their own decisions of what they want to photograph and concentrate on. The aim is to provide a holistic learning environment where children can explore their natural environment, ask questions and develop their digital literacy by further research creating a wholesome experience. It allows children choices to work independently or collaboratively, learning from one another.		

Links to outcomes:

‘Producing; planning, sourcing and teaching’ (Hwb, 2019: 3).

‘Data and computational thinking; problem solving and modelling’ (Hwb, 2019: 4).

‘Interacting and collaborating; collaboration’ (Hwb, 2019: 2).

Differentiation:

Children in the classroom who are recognised to be ‘more able and talented’ can use the iPad to take videos and upload to the computer to view. (Department for Children Education and Lifelong Learning and Skills (DCELLS), 2008: 1).

For the child with cerebral palsy their one to one support should not take over but have a facilitating role. Use their electronic communication board in place of an iPad to ensure inclusion.

Role of adult/adults:

During this activity the practitioners can record and monitor children to ensure they are meeting the digital framework strands. They can provide support for children who may be finding the activity challenging. They can assist during uploading to the computer and printing but allow children who are more able to take lead. Practitioners can observe and facilitate children’s learning allowing a child- led experience.

They could set up all the equipment required to ensure it is accessible to all children, so it is ready. Ensure the computer is linked to the interactive whiteboard and make sure the iPad is ready and set up before the children use it.

The activity:

Children can use a range of resources noted above in their outdoor environment to explore the variety of wildlife they are able to see. They can use the iPad's and camera to capture images of what they see, use binoculars and magnifying glasses for a closer view and then upload.

Once the photos are uploaded, children can print, then using the images to trace or as a template to draw from. With the spelling templates already created, children can use to label their pictures they have created.

On an iPad, children can take turns and using the software already set up can draw electronically onto the computer, they can choose whether they colour a picture in or create their own from scratch using the many settings available.

The classroom computer can be used to research more information and practitioners can use it as a tool to scaffold children's learning if they have asked questions outside and want to explore deeper. This information can be showed on a large scale using the whiteboard for all children to see.

The activity is designed to support children and their digital competency whilst accessing ICT. Following the digital competency framework (Hwb, 2019) which aims to support children in developing a variety of skills to become digitally competent, the activity includes at least three of the strands. As the United Nations on the Rights of the Child (UNCRC) Unicef (no date) states children should be provided with an education so they are able to reach their full potential. Therefore, due to digital world children are growing up in, this has become an important aspect of their future (Chaudron, 2015). Therefore, the Donaldson report, Successful futures (2015) has included a digital element within the cross- curriculum to enable children in becoming digitally literate citizens.

The activity includes the strand of 'interacting and collaborating where they are able to learn how to upload the pictures they have taken on to the computer, how to save and print. Through practicing these elements, it supports their learning by saving work to a specific location so they do not lose it and how this can be easily accessed at a later date if needed through choosing a relevant name to make it trackable. (Hwb, 2019:2). This also supports the 'ambitious and capable learner' purpose of the new curriculum as children develop their knowledge and learn new skills through collaboration whilst using technology to support the activity holistically. (Welsh Government, 2015: 1). However, some children may find this difficult if they have limited experience of uploading and therefore the practitioners or more skilful children can support, which follows Vygotskys theory of the Zone of Proximal Development (ZPD) and More Knowledgeable Other (MKO) (Shabini, 2010). Therefore, children who may be stuck at a certain point where they are not able to progress, someone who is more competent can facilitate learning and help them to develop (Shabini, 2010). Vygotsky believed children are able to learn best when in collaboration, and when in a group with someone of more competence, children are able to learn new concepts and skills (Blake and Pope, 2008).

The Ofcom (2018) report showed 42% of children have their own tablet, and 82% of children ages 5-7 go online for nearly 10 hours a week, which shows how much children are accessing technology. However, not all children may have access to a variety or any digital devices at home, which needs to be taken into consideration when doing this activity. Therefore, effective practice of practitioners applying their knowledge to support children's learning during the activity is an important aspect. The Donaldson Report,

Successful futures (2015) recommended the DCF as technology is becoming a fundamental aspect in children's learning and life. Therefore, teachers need appropriate knowledge to support children (Campion, 2016). However, Estyn (2018) state practitioners of key stage two and above feel less confident in delivering the whole variety of digital skills. It is recommended by Estyn (2018) that staff work together to share good practice. However, in some cases there are communication issues according to Estyn (2018) from leaders which has left some teachers not feeling included which has led to negative attitudes in the preparation of the DCF. The DCF, Hwb (2019) states Digital Pioneer schools are set up to support other schools in applying the framework and provide expertise. Plumb and Kautz (2015) state studies show practitioners lack of digital knowledge which becomes a barrier in providing good practice. Edwards (2013) suggest practitioners to develop knowledge in children's digital interest. Therefore, as Parry (2013) state they should start with a foundation of knowledge and can allow children to be experts of digital use, and practitioners can develop knowledge from them.

Plumb and Kautz (2015) say there is insufficient training opportunities for practitioners to develop effective technology practices. However, Estyn (2018) state, education centres for trainee teachers have began to support them with skills needed in delivering the variety of skills needed by the DCF. However, 'the development of student skills is too variable due to their limited involvement in DCF developments, and their lack of awareness of the weaknesses in ICT provision in schools' (Estyn, 2018: 4). Therefore, a DCF self-assessment tool has been further developed which allows practitioners to track their own digital competence and find out areas they need to further develop (WG, 2017). Digital leaders are also available to provide practitioners with advice, training and support within the framework (Gwegogledd, 2019).

The role of the practitioner in the activity is to facilitate, observe and monitor the children ensuring the children are reaching the DCF strands (Hwb, 2019). If a child is finding the activity too easy or for the children who are considered to be more able and talented, practitioners should provide more challenge for them. As the Curriculum for Wales (2015) makes clear, all children should be able to achieve their full potential whilst learning. As DCELLS (2008: 7) states, children who are 'more able and talented' it is important to plan additional activities to extend their learning. This can be done by allowing the children to

use power point on the iPad's to create a presentation of their work. This supports the 'ambitious and capable learner' purpose of the Foundation phase by children applying their knowledge to different media contexts using their creativity. (Curriculum for Wales, 2015:4).

The activity supports the Curriculum for Wales (2015) as it provides a hands-on learning experience where they are able to experiment, and also aims to be child-led as children can make their own decisions about what they want to capture. This supports Piaget's theory of 'little scientists', as children explore and interact to understand people, objects and concepts around them through learning by doing rather than watching adults (Oakley, 2004). This supports the 'producing; planning, sourcing and searching' element of the DCF (Hwb, 2019: 3). The aim of the activity is creating a wholesome experience, children who have asked questions whilst outside, practitioners can follow this through by using a search engine to find out more information (Hwb, 2019). This supports Bruner's Iconic theory of cognitive development, where information is stored as sensory images, therefore capturing images of wildlife, drawing, and searching helping to reinforce children's learning (McLaeod, 2019). The facilitating role is also influenced by Bruner, who believes children construct their own knowledge and therefore the role of the practitioner should not be 'teaching' the information (McLaeod, 2019). As Successful futures (2015) makes clear, children need to have opportunities to make mistakes and learn from them to build their confidence and resilience.

The other strand the activity includes is 'Producing; evaluating and improving' (Hwb, 2019: 4). The children are able to form opinions and suggest how they can improve their work, spotting their mistakes and using tools to improve their work (Hwb, 2019). This builds them to be 'ambitious and capable learners' as the new curriculum for Wales states. (WG, 2020:2). The children are able to push themselves through challenges, developing a range of skills to support their learning holistically (WG, 2020). The activity allows children to learn from one of another, supporting Bandura's social learning theory that children imitate behaviours of their peers to develop learning (Nabavi, 2012).

The Curriculum for Wales (2015) states practitioners should have an understanding of child development and barriers due learning difficulties, and therefore for the child with cerebral palsy, the activity needs to be adapted to suit their needs. Like Bruner's scaffolding approach to learning, practitioners can help children to reach higher level of development by simplifying the activity, but also providing models to be imitated (McLaeod, 2019). As Chassiakos et al. (2016) suggests interaction with children using digital screens improves their learning. Therefore, the activity needs practitioners supporting digital screen use, as it is important to support learning if the help is needed. Assistive technology is used for children to sure the learning environment is inclusive. Practitioners can ensure the child has their electronic communication board to use this similarly to children with the Ipads. (Jansheski, 2020) This activity requires fine motor skills and therefore, for children who may struggle with these skills, typing and writing devices can be used to help facilitate the child to write (Jansheski, 2020) This ensures the activity is inclusive and the practitioner does not have to do things for the child.

Doing the activity outdoors also supports children's physical development which is a key area of learning in the Curriculum for Wales (2015) when exploring their outdoor environment. This supports a variety of skills including improving fine motor abilities, physical control and coordination (The Curriculum for Wales, 2015). Dowdell, Gray and Malone (2011) believe the outdoor space also supports children's social development as they can build positive relationships with their peers working together.

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