

Part 4

Outdoor play remains an important part of early childhood provision in the United Kingdom and all over the world. Learning outdoors has been seen as essential for children's development, offering opportunities in many areas of learning providing a holistic development of the child. The role of the adult is important to observe, assess and reflect on children's learning and extend when needed by supporting and questioning children to allow curiosity and deeper thinking. This essay will explore the role of the adult in supporting children's development of maths and science outdoors focusing on the benefits of sustained shared thinking.

The importance of children being active in the outdoors and learning through nature was recognised by Froebel in the 1800's. MacBlain (2018) noted that Froebel was keen for children to explore challenges and to safely test limits and risk which would develop resilience, an important part of a child's holistic development. This is agreed by Bottrill (2018) who states outdoor play offers children potential to freely choose what to explore and takes risks as well as White (2011) offering that being outdoors contributes to children's well-being allowing them to interact and behave differently encompassing their holistic development. Challenges may occur in outdoor play such as the adult's perceptions of what is safe. Davies and Hamilton (2016) suggested that an element of risk was essential as it helps children to develop essential skills. Tovey (no date) agrees that adults need to juggle how to safely let children take risks and learn from their mistakes.

According to Waite (2011) the environment is a unique opportunity for play and learning rather than just physical play. Some practitioners have some outdated views that see learning only taking place in a traditional classroom. However, Maynard (2014) states that adults who understand the importance of outdoor learning have a great impact on children's education. It is the role of the adult to respond to children's interests and develop their learning in the moment. White (2011) suggests adults give strong messages when they value the outdoors as a learning environment. Children recognise this and are encouraged to explore when it is being modelled by an adult.

Hwb (2022) introduced Curriculum for Wales which supports learning through play and outdoors, promoting well-being as a core principle of the four purposes. This states the importance of children enjoying challenges, being able to question and problem solve, taking risks and developing confidence and empathy. Practitioners observe children's play and then use the progressions steps and four purposes to provide opportunities to extend children's learning further using their interests to engage and accounting for their emotional development and well-being (Ouvry, 2003,). The curriculum for funded and non-maintained nursery settings from the

Welsh Government (2022) further sets out areas of learning and development which details being outdoors as important for children to be themselves and make sense of the world around them. Furthermore, this document also states the importance of the enabling adult, who create environments where children feel safe to express their feelings and learn. Practitioners should model a joyful approach to learning and use teachable moments to observe and engage in their play.

Additionally, loose parts and affordance is important for practitioners to understand how children engage, explore and interact with their environment. Gibson (1979, quoted in Waters, 2017, p. 41) describes children using their imagination to afford objects and spaces into ideas that are not obvious to adults, especially in the outdoors where learning is not restricted. Furthermore, Brodie (no date) suggests that having rich, open-ended resources such as loose parts, can inspire curiosity and encourage children to communicate ideas and questions. Loose parts allows children to develop ideas and problem solving skills (Gorrie and Uda, 2020) making it an addition to the environment to promote maths and science concepts (White, 2011). Furthermore, according to Nicholson (1971, cited in creative star learning, 2024) all children of different abilities can use loose parts therefore it is inclusive for those with additional learning needs and children will explore at their own development independently. The adult can scaffold if needed to challenge the child in their play making sure to resist the urge to step in too soon, (Play Scotland, no date).

An equally important aspect of childhood provision is the role of the adult. Tovey (2012) inspired by the Froebelian approach suggests adults have a key role in observing children's interests, supporting and extending play and learning by conversing and allowing the child to build upon adults' answers by constructing their own explanations. Bruce (2001) believes that adults should take an interest but to be aware of how to support play without taking over stating that children need to become independent in their play. This can be achieved by scaffolding, a term used by Bruner (1976, cited in Aubrey and Riley, 2019, p. 126) who believed that adults should model or give cues to support and enhance learning when necessary, built upon Vygotsky's theory of Zone of Proximal Development. Vygotsky (1978, cited in MacBlain 2018, p.58) believed that with the help of a more knowledgeable other, children were able to learn more, especially when the adult differentiated learning according to their level of development.

According to Bilton (2010) children cannot have opportunities or experiences of learning outdoors without an adult's support or involvement which makes the role of the adult important. Adults need to be reflective practitioners, facilitate communication and support challenging and risky play. When adults join children in their play, they feel safe, listened to and respected. All these are benefits of Sustained Shared thinking (Early Education, 2022). Questioning is important as the role of the adult to encourage children to test their ideas and explore multiple

possibilities. According to Tovey (2012) Open questions help children to reflect on their thought processes and make connections, which allows the adult to gauge their understanding of concepts.

Additionally the Curiosity Approach (no date) says the role of the adult during sustained shared thinking is important using both verbal and non verbal communication to develop interactions with children by showing an interest and respect when listening and using speculation and open questions to assist children in their thinking skills. According to Siraj-Blatchford (2009) once this has developed with scaffolding from the adult, children will use sustained shared thinking with peers to collaborate and work together.

The outdoors can inspire awe and wonder and provides rich and authentic experiences for children to engage and connect with the natural world (Welsh Government, 2022). This allows children to develop skills for maths and science using natural open ended resources to enhance their learning by developing imagination and curiosity. Maths can be everywhere in the environment providing the adult can realise the opportunity and model language needed to explore (Tucker, 2014). Children need to be given time to explore, investigate and experiment while the adult stands back observing and facilitating learning when needed by providing open questioning or engaging in their play to initiate shared thinking (Purdon, 2013).

When specifically referring to adults supporting and encouraging maths and science it is important to consider the outdoor environment as essential to children's learning. According to White (2011) everyday materials and experiences serve as a starting point for development of mathematic ideas. Real, authentic resources such as telephones and clocks can promote learning by the children being engaged. Loose parts and big spaces can provide opportunities for children to explore maths in the real world to cover several concepts. Again this can be supported by the adult facilitating dialogue, investigations and explorations (Robertson, 2017).

By building upon a child's interests the adult can create opportunities for exploration by setting the area with resources that will engage the children and learning will occur. For example in the building area shapes and properties can be explored with blocks (Community Playthings, 2018). Robertson (2017) suggests a mix of resources, investigations and prompts to support maths in independent play; these could be organised into containers to sort by shape or size.

According to The Welsh Curriculum (2022) curiosity about science leads children to ask questions about the world around them. The role of the adult is to encourage children to question why and make sense of the world to develop their learning further. As stated in the four purposes, children being "ethically informed citizens" can consider their impact on the environment and have the responsibility to try to reduce it (Welsh Government, 2023). Children also need to consider living things in

the environment and understand how things grow and develop and also how to demonstrate care, concern and respect (Cohen and Waite-Stufiansky, 2020). According to Brunton and Thornton (2010) Science is understanding the world around us. Children can develop a sense of belonging in the outdoors, begin to understand the world around them and reduce negative impact on the environment. Practitioners may want to set out a feature table that encourages observation to promote awe and wonder while being nearby to facilitate dialogue, explorations and investigations. Davies *et al.* (2017) suggest making the most of teachable moments such as exploring the weather while playing outside to introduce language and skills.

Sustained shared thinking [SST], as described by Siraj-Blatchford *et al.* (2002) happens when adults engage children through questioning aimed at deeper thinking and problem solving. It focuses on the more meaningful interactions that support deeper thinking and learning and is reliant on meaningful interactions between adults and children working together to extend understanding or explore ideas (Brodie, 2014). The role of the adult is important to use open-ended questions to encourage children to think deeply by talking out loud or building on ideas. According to the Welsh Government (2022) these conversations, enhanced through effective modelling and questioning, can create an environment where both adults and children contribute together.

[SST] has many benefits to progress children's learning and development especially when there is opportunity to spend time outdoors. This promotes imagination to explore curiosities and encourages children to take on new challenges by introducing new and extended experiences (Siraj-Blatchford *et al.* 2002). As progression develops [SST] can transition from being adult supported to becoming embedded in children's play, then later collaborative play with peers (Purdon, 2013).

According to a research project The Effective Provision of Pre-School Education [EPPE] project (Sylva *et al.* 2004) highlighted that children made the most progress with cognitive development when adults engaged in open questioning and modelling skills when playing to deepen cognitive development. Practitioners respond to children's interests and engagement by scaffolding their learning and enhancing the environment.

In conclusion, being outdoors provides children with authentic learning experiences and learning through play that cannot be replicated inside. The role of the adult can observe children playing, noting their interests and how these can be explored and developed. The adult can also scaffold children in their learning by supporting and questioning so they are able to explore their curiosities and extend their learning. Although faced with challenges from some practitioners, the most effective

practitioner is able to provide an environment that is rich in maths, science and can contribute to children's holistic development.