

Task Four

Brussoni (2019) states the importance of children's outdoor play for healthy development, and it is being understood more and more through research and observations. Furthermore, White (2016) advocates for high quality outdoor provision for children and believes the whole educational curriculum can be learnt outdoors. There are many advantages to outdoor play for young children's physical, mental, cognitive, and social development but emphasis is needed on altering cultural norms so that children can play outside every day. To achieve the best outcome to outdoor play, interventions to lessen parents' and professionals' worries, increased training for professionals, changes to policies, and enhanced urban design for better settings and natural play areas even if the space is limited is needed (White, 2019).

According to Richardson (2013) the outside environment offers aspects that cannot be supplied on the same scale or in the same manner indoors or that are either distinct from those found indoors, for instance the space and freedom to move. Furthermore, Bento and Dias (2017) suggest practitioners that appreciate the unique qualities of the outdoors understand that it offers a vastly distinct and comprehensive setting for fostering children's wellbeing and physical learning.

Children can gain knowledge according to nirect (no date), about own safety by learning the ability to experience risks and assess the risk themselves by finding solutions, this is gained from experiences from outdoor play. Finding a risk and benefit balance through risk assessments is essential in keeping everybody from harm (Harper, 2018). Curtis (cited in Community Playthings, 2013) states adults will always be there to supervise children's safety and should offer safe alternatives to risky situations instead of stopping the children engaging in the activity. Harper (2018) and Bottrill (2022) both agree outdoor play gives children a variety of opportunities to test their own boundaries and engage in daring activities under the safety net of adults and the atmosphere they have created. Minimising risk can be achieved by negotiating rules of how to stay safe with the children, this makes it more real and meaningful for the children.

Every child has the right to encounter and appreciate the important and the unique qualities of being outside and to play, as stated in Article 31 of the United Nations Convention on the Rights of the Child (UNICEF, 2019). When young children have unrestricted access to stimulating outdoor surroundings for learning through play and hands-on experiences, they thrive, and their bodies and minds develop at their best. The benefits provide the child with a break from the demands of everyday life, it helps to reduce anxiety and stress improving well-being, mental health and it aids in topping up vitamin D from the sun and being in the fresh air (Early years alliance, 2022),

This can only be achieved by adults and practitioners as stated in The Welsh Curriculum (2022) who are knowledgeable, passionate, and curious themselves, it is essential to maximising the possibilities of the outdoors. The practitioners should encourage children to explore the natural world around them. Vygotsky's theory underpins this by scaffolding the knowledge the child has and encouraging further learning. Practitioners should ask open ended questions such as 'What do you

notice about the difference between this plank of wood and this one?' It is also important to welcome and answer children's questions, even if the answer is unknown. These foster observation skills, scientific inquiry, a positive attitude towards curiosity and learning and further discussions.

It is important to incorporate mathematics such as counting and measurement into outdoor activities. For instance, counting the number of steps it takes from one side to the other of the plank of wood. According to Bottrill (2022) playing with mathematics allows it to be liberated from constraints and transforms it into something enjoyable. The idea is to make maths more relevant and meaningful for the children by incorporating mathematical understanding or even lack of it, into their experiences. This is accomplished through problem solving, language, memory, symbolic processing, hearing, and physical coordination for counting, skills that underlie mathematics. Providing hands-on exploration activities such as building simple structures, for instance moving pieces or planks of wood to make a bridge or a road.

Bakar *et al.* (2020) and Bakar (2021) studies both conclude it is beneficial to take photos of activities including outside activities as it allows for reflection and discussion of what has been learnt at a later stage, allowing for communication skills enhancement. Additionally, the activities can be reflected upon, stimulating the children's imagination and to inspire for further scientific investigation (Britisch, 2019). Permission should be attained allowing photographs to be taken by the nursery or school from the parents or guardians of the children and appropriate measures in place to protect the children and staff (NSPCC, 2022).

Children are "little scientists," according to Piaget (cited in Aubrey and Riley, 2022), who learn through experimenting and making mistakes in their play environments. Discovery and investigation fuels curiosity through shapes, symmetry, colours, order, patterns, and quantity exploring, increases the mathematics which leads to further exploration. Asking questions such as why, how, when and what also fuels further investigations and understanding the science. Furthermore, a study by Franco, Shanahan and Fuller (2017) states nature provides the perfect place to use and stimulate each sense, sight, hearing, smell, touch, and taste to its fullest with natural sounds and smells underpinning experiences of nature. Children learn through senses by touching different textures and patterns found naturally in the environment, for instance the roughness of the bark on the tree or the tickle of a caterpillar crawling across the children's hands, sound from the birds, the wind blowing, running water, traffic, recreational and industrial noises, sight from different shapes, colours, movement of objects such as tress blowing in the wind and the leaves falling off the tree, and the smell from the flowers, soil and the trees, and taste from growing food naturally in garden patches and consuming them. Children only think with the information accessed through the senses experienced, by using own bodies this provides the brain with the raw data it needs to learn about the world (White, 2016).

Additionally, Malaguzzi (cited in Bradbury and Swailes, 2022) proposes that children are capable, inquisitive, creative, and can support own learning process. Working with children to explore their hobbies and curiosity may increase willingness to learn and to acquire science and mathematics skills through being exposed to engaging situations that encourage curiosity and active learning. Moreover, Virtual Lab School

(2023) and Bottrill (2022) propose that these experiences can be experienced in outdoor settings, where dynamic spaces like woodlands, parks, and fields have the kind of unstructured resources that inspire children to use their imaginations and engage in creative thinking, which also supports scientific and mathematical thinking. Children need to make connections with the natural world and ultimately a deep rooted and primal connection to the soil, trees, the earth, the sky, and themselves (Bottrill, 2022). Therefore, Evans (2016) argues that parents have a crucial role in ensuring that children have access to the outdoors and the kinds of contexts that have a high play affordance, where they can make creative use of the surroundings and materials provided. The affordance theory by Gibson (2014) demonstrates the objects provided shape the perception of what is possible to do with them. Similarly, the loose parts hypothesis by Nicholson (1971) contends that children's engineering and critical-thinking abilities grow in settings with a variety of variables or loose parts, which are open-ended, transportable materials that encourage problem-solving by allowing children to build, manipulate, change, destroy and explore, empowering imagination (King, 2022).

A study by Flannigan and Dietze (2018) demonstrated how loose parts improves children's engagement with science and mathematical learning. Loose parts can add depth and quality to outdoor play through providing the freedom to develop play experiences based on own ideas and goals, rather than the play being predetermined by the materials and surroundings. However, Spencer *et al.* (2021) highlights that such outdoor play with loose parts can be limited as adults do not always recognise the value of open-ended play in the outdoors. This is due to practitioners' own beliefs and personal experiences and upbringing can influence teaching and practice methods, influencing fears associated with children injuring themselves during risky play with loose parts.

Wales promotes play as a priority, this is stated in The Curriculum for Wales (2022a) and the Curriculum for funded non-maintained nursery settings (2022b). It focuses on a holistic approach allowing for learning which is meaningful and exciting for the children. The Curriculum for Wales is underpinned by many theorists to help practitioners to make each child feel the security of *cynefin* a sense of belonging where people and the environment is familiar and recognisable.

Bruner's theory (cited in Aubrey and Riley, 2022) believed children learn and develop skills through discovery, gaining new knowledge and building on previous knowledge learned, called scaffolding, and fostering a deeper understanding and a longer retention of understanding. Piaget's theory (cited in Aubrey and Riley, 2022) sees the practitioner taking a step back and only observing, allowing activities to be child-led and to progress at the child's own speed and to change directions of play if they wish at any time. It is also paramount that practitioners are also interested in providing engaging and authentic experiences in exciting and effective safe environments but are willing to help if needed. The observations collected are used to plan exciting and relevant environments to correspond with the children's interests. Early childhood education pioneers like Friedrich Froebel, Maria Montessori, and John Dewey all emphasised the importance of movement, physicality, and doing in young children's lives and learning (White, 2016). Montessori theory (cited in Bradbury and Swales, 2022) agrees with Piaget (cited in Aubrey and Riley, 2022) that the process of learning should progress naturally for

each individual child. The child should be at the centre of own learning. Children are naturally curious and are capable of independent learning.

Through providing outdoor spaces for children to play, explore and learn, practitioners are supporting children in becoming competent as the children learn through different activities. Dewey (cited in Aubrey and Riley, 2022) believed this is important and enables children to be actively by interacting in own learning process. While ensuring the children are supported by practitioners who have provided a space that creates opportunity for excellent development results. Incorporating all the above strategies and techniques into outdoor activities and play can create a rich learning environment where children can naturally develop their mathematical and scientific understanding while connecting with the natural world around them.

John Rosenow (cited in Community Playthings, 2013) states “We need to help children learn to love the earth before we ask them to save it”, allowing children the opportunity and the joy of nature and the freedom it brings at an early age will be a positive lesson to learn, will have a positive impact for years to come and it is adults and practitioners’ responsibility to teach and give them the experiences and information needed to achieve this.