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## Affordances in nature: Australian primary school children identify learning opportunities

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**Affordances guiding Forest School practice: Discussing the application of Ecological Dynamics perspective**

**Pre-publication version of:**

**Abstract**

The Forest School practice in the United Kingdom (UK) is increasingly becoming popular. Denmark's *udeskole* (outdoor school) model applied in early childhood education, itself influenced by the Scandinavian philosophy of *friluftsliv* (free air life), inspired the beginnings of Forest School idea. Within the UK, Forest School education has responded both to school curriculum and connection to nature with nature-based activities and play pedagogy. In an environment of demonstrating learning outcomes in the achievement of expected numeracy and literacy standards, Forest School gets school children out into the woods. Challenges exist – for example, can every child be outdoors, feel comfortable, and appreciate the woods? Forest School appears to have become normalised and a copyrighted product. Also, the pedagogy of Forest School lacks a solid theoretical underpinning that guides its practice responding to the diversity of contexts and clients escaping degenerated formula-type marketisation. We present an ecological dynamics framework focused on affordances and the person-environment scale of analysis, to guide future design and implementation of activities. From this approach, benefits obtained are about realising and attuning to affordances which have sociocultural and individual connotations, and respecting local cultures and their community resources (for example, Australian indigenous). The role of the Forest School facilitator becomes more specific to guide clients towards the perception of affordances in nature for perceived benefits. The Forest School concept, with its ethos of facilitating experiences for well-being purposes, will provide better opportunities for diverse populations.

**Keywords:  Outdoor learning, Forest School, ecological dynamics, well-being**

**Suggested running header: Affordances guiding Forest School practice**

**Introduction**

In recent years a growing body of research has investigated Forest School practice (for example, Harris, 2017; Knight, 2009, 2011; Maynard, 2007; O'Brien & Murray, 2006, 2009). In the United Kingdom (UK) the Forest School idea emerged from a Danish approach to Early Childhood Education that had incorporated learning outside the classroom. Forest School aims to provide regular hands-on learning opportunities for children to have contact with the natural environment over an extended period with a careful risk-benefit analysis (O'Brien & Murray, 2007). As Forest School in the UK developed as a specific practitioner-focused framework it drew from learning theories, play pedagogy and practices from outdoor education. Initially catering for Early Years Education (Foundation Stage) as in the Danish context Forest School programmes then expanded further to include broader age groups and differential needs, in particular older children with emotional and behavioural issues (O'Brien & Murray, 2006). Over the years of its development Forest School brand has increasingly become institutionalised with the registration of different bodies, efforts towards obtaining copyrights and commercialisation of Forest School training (Leather, 2016). The process of creating a National Governing Body "to accredit professional standards for delivery and to regulate training standards" (Knight, 2011, p.590) has further differentiated Forest School. This has potentially resulted in a requirement to qualify as a Level 3 Forest School practitioner even if individuals are already professional outdoor educators and school teachers are already doing nature-based learning activities with their pupils following methods, techniques and risk-benefit analysis of their choice.

The current developmental trajectory of Forest School education reveals three main points for a critical discussion. Firstly, the 'educational' component of Forest School model challenges the historically, socially and culturally situated outdoor education in the UK in its structured methodology of learning techniques; secondly, the commodification of Forest School; and thirdly, the original Scandinavian philosophical influences are not reflected in the UK's Forest School model which overemphasises the 'development' of a child. Additionally, in their efforts to market their individual model of Forest School, professional bodies have adopted it in different countries (for example, Bush School in Australia by Archimedes Training, 2012) which might have in effect further neglected the rich local indigenous cultural heritage. Nature-based activities, learning outside the classroom and

play pedagogy are fundamental characteristics of most democratic education learning centres (or progressive schools) around the world, for example, Summerhill School in England (Bland & Sharma-Brymer, 2013) – a challenge to the institutionalisation of Forest School. There have been many innovative efforts to engage children and youth for well-being in diverse environments (Truong et al., 2016). Responding to the above critical points this paper argues that Forest School practice, as it is now, needs to embrace sociocultural diversity, acknowledge differences in doing nature-based activities, and respect local knowledge and perspectives. To do these Forest School approach needs to determine a theoretical perspective that can guide context-specific practices based on non-homogenous principles. We discuss Ecological Dynamics perspective as a principled, overarching theoretical framework in the hope that educators can understand that their role is to design unique learning experiences which emerge from the landscape of affordances in a typified woodland environment. In our first section we briefly summarise the origins of Forest School, trace its historical roots, and point out its relevance and current issues in order to contextualise the ED framework. The second section will outline Ecological Dynamics theoretical perspective and discuss its application to Forest School highlighting affordances.

## 1.1 Development of Forest School

The Forest School idea in the UK emerged from a programme initiated by the staff of Bridgwater College teaching Early Years Education course. They visited Denmark to study their practice of outdoor school (*udeskole*) that engaged young children in activities outside the classroom. The staff recognised the importance of the Danish approach to early childhood education where children's early learning experiences outside the classroom were significantly influential in their development. Danish *udeskole* itself had its roots in the unique Scandinavian philosophy, famously known as *friluftsliv* (Aadland et al, 2009; Bentsen & Jensen, 2012; Harris, 2017; Leather 2016; Maynard 2007). *Friluftsliv* or 'free air life' is a philosophical lifestyle that emphasises a person feeling free in nature and the spiritual connection with natural landscapes – their place (Gelter, 2000, p.78). The notion of *friluftsliv* has similar underpinnings to many indigenous perspectives on the human-nature relationship (Stewart, 2008; Whap, 2001) and emphasises a slow and gradual accumulative lived experience (Lloyd & Gray, 2014; Gelter, 2000; 2009). *Udeskole*, on the other hand, is associated more with 'outdoor schooling' which is practised more formally (Bentsen &

Jensen, 2012; Bentsen et al., 2008; Bentsen et al, 2017; Waite et al, 2016). The experience of relating to nature shifts from a spiritual connotation to learning outside of the classroom. *Udeskole* is more a method of teaching, a movement to redefine school, and a theory about viewing education as a set of diverse experiences that happen not only inside classrooms but also in external social, economic, political and geographical contexts (Bentsen et al., 2008; Jordet, 2009). *Udeskole* is a way of understanding how learning is situated in everyday life within community life and also in the larger societal context, not only inside classrooms. The educational value of *udeskole* is that children develop knowledge, understanding and their worldviews from a rich canvas of diversities embedded in everyday life that cannot be replicated inside a traditional classroom through literacy and numeracy learning. Most importantly, their learning is contextualised outside of the classroom.

There has been some debate (Waite et al, 2016) around the significance of *friluftsliv* to the Forest School practice (Gurholt, 2014) and how this has been diluted both in terms of its philosophical meaning and in its practice of living the outdoor experience (Gelter, 2000, 2009). Partially this has stemmed from the fact that the original Danish influence is not necessarily focused on learning in nature or the spiritual connection to nature; instead the focus is on learning that takes place outside the classroom context which might also include local urban communities (Jordet, 2009). The important focus of *udeskole* is that it is relative to time and place as learning experiences are contextually situated. From this perspective while the roots of Forest School have been traced to both *frilufstliv* and *udeskole*, Forest School as it currently is, is closer to *udeskole* moving away from *friluftsliv* while still focusing on learning in an outdoor context (Bentsen et al., 2017). However, as Waite et al (2016) pointed out there are marked differences between Forest School and *udeskole* – the purpose of Forest School is felt as an antidote to nature deprivation whereas *udeskole* is a "bottom-up counterculture of traditional education" (p.872).

Forest School in the UK was formalised as a course of study for practitioners of Early Years education in 1995 after Bridgwater College staff adopted it successfully in their teaching practice (Knight, 2009; Cree & McCree, 2012; http://www.forestschoolassociation.org/history-of-forest-school). Within the courses that professional bodies such as Forest School Association and Forest School Education

(Archimedes Trading) are offering as Open Award qualification a trainee at Level 3 is taught Forest School methodology and techniques with standard activities over 5 days.  Besides doing various bush craft activities, Forest School training and development courses drew from a variety of sources such as Playwork (http://www.playwales.org.uk/eng), learning theories such as Multiple Intelligences (Gardner 2003), Vygotsky's Zone of Proximal Distance and Piaget's Schemas of child development (Bruner, 1997) and Daniel Goleman's Emotional Intelligence (1998). Keeping the development of self-esteem, confidence, self-awareness as prominent aspects of physical, social, emotional and communication spheres, Forest School model, as a neoliberal product, measures the outcomes of their programmes. Initially starting with young children it has expanded further to include different age groups and differential needs, especially of older children with emotional and behavioural issues (Harris, 2017; O'Brien & Murray, 2006). The most popular activities are using tools, making fire, den/shelter building, nature-exploration, team-games, environmental games, and nature arts and crafts.

More recently and in response to Forest School becoming part of school curriculum several overlapping conceptual and practical skills frameworks – ecotherapy, sustainability, *friluftsliv*, biophilia, Bushcraft, outdoor traditions, and outdoor and adventure educational practices –  have informed the practice (Harris, 2017; Knight, 2011; Maynard, 2007). The process of creating a National Governing Body in order to formalise training and register professionals (Knight, 2011) has differentiated Forest School from its philosophical routes to a neoliberal educational product that meticulously documents results and outcomes from practice (Leather, 2016). This has potentially resulted in a requirement to qualify as a Level 3 Forest School practitioner focusing on particular techniques and practical skills required for running programmes independently. The Forest School Association and Forest School Education, as two prominent professional bodies in the UK, network with such independent practitioners who mostly own their businesses. This could be disadvantageous to those who are already professional outdoor educators or school teachers with a keen interest in nature-based activities incorporating outdoor learning in their school teaching practice. Marketisation and commodification of Forest School model might standardise outdoor learning/education practices with controlled performance still producing outcomes on par with school education system (Leather, 2016). This potential situation means a weakened theoretical approach to the practice.

In its move away from *udeskole* and *friluftsliv* concepts of the Scandinavian countries, Forest School in the UK has overemphasised an adult 'developing a child's self-esteem' and therefore is distinct from *udeskole* (Leather, 2016; Waite et al, 2016) and lacks an association to the philosophy of *friluftsliv*. Forest School practice, as it is now, has connotations with social constructionism (Leather, 2016); however, it still is weak in bringing together a clear theoretical understanding that links it with *udeskole* and *friluftsliv* to strengthen its meaning-making process correlated with affordances in nature.

## 1.2 Relevance of Forest School practice

Two key factors support the relevance of Forest School – the state of the planet and well-being of people. Indigenous cultures around the world reveal that living in nature is grounded in a distinctive relationship between humans and place that is spiritual. Their knowledge and perspectives, developed over thousands of years in human history, are embedded in their everyday experiences woven with the natural world (Haig-Brown, 2010; Stewart, 2008; Whap, 2001). Their inimitable place-bound identity, with a close relationship with land, was allied with their belonging in nature. Similar interconnectedness was seen in the traditional approach of *friluftsliv*, practised exclusively in Norway and Sweden as a way of life (Gurholt, 2014; Gelter, 2000). Deep place-specific relationship characterised by feelings of transcendence shaped the experiences of those who lived there – "In Norway *friluftsliv* is … a way of living close to the beautiful landscapes of the country" (Gelter, 2000, p.79). Alongside developing place-bound beliefs, environmental behaviours, attitudes and practices influenced by their cultures (Quay, 2016), communities developed their specific ways of living in nature with skills necessary to use natural resources for livelihood, remaining conscious that they were part of the natural world (Owuor, 2007). Being out in the natural world was governed by how communities related to it differently, themselves as part of the natural world, making meaning of nature's characteristics and valuing it contextually. 'Being one with nature' was not an external feeling, it was philosophical and spiritual (Gelter, 2000; Graham, 2009; Stewart, 2008). Objectives to achieve goals and outcomes were not necessary; nature was present in the everyday life.

Objectification of nature and natural resources, effects of urbanisation in the post-industrialisation period, combined with remarkable changes in occupations have altered our lifestyle and reduced our opportunities to be in nature. Influences brought in through the use of machinery, technological innovations and outcome-based lifestyles in industrialised societies also have influenced our beliefs and attitudes towards our relationship with nature. 'Disconnection' with nature and nature deprivation has been increasingly negatively impacting on our health and well-being and also the health and well-being of the planet (Louv, 2005; Roszak 1995, Wilson, 1984). Academic research is calling out for a reconnection with nature for health and well-being (Carpenter & Harper, 2016; Pretty et al., 2007) and a better future for all as nature has a restorative effect on humans (Capaldi et al. 2014; Gill, 2007; Pretty et al. 2009). Children's overall physical, emotional, social and intellectual development is arguably linked to restorative effects experienced from being in nature (Gregoire, 2015; Lloyd & Gray, 2014; Maller & Townsend, 2006; Wells 2000). There is a growing realisation that engaging in nature-based activities, regular and repeated contact with nature is essential to the health and well-being of children sustained by the development of a deeper connection with nature (Maller & Townsend, 2006; Munoz, 2009; Pretty et al, 2009; Roe & Aspinall, 2011; Said, 2012; Stolar, 2009).

With increasing fears around safety and child protection, educational contexts and schools seem to be the two most viable and easily accessible safe environments where children can engage in nature-based activities, learning outside the classroom (Sharma-Brymer & Bland, 2016). In these respects Forest School programme offers a fitting adaptation for schools in the UK.

However, even such adaptations are planned, designed and executed by adults who seem to overemphasise the correlation between a young child's self-esteem and confidence, and activities based on the Forest School model itself (Leather, 2016). Learning outside the classroom need not necessarily follow a particular model. This further illuminates the existing gap needing a solid theoretical understanding to Forest School framework. Such a theoretical understanding may then uphold the validity of any outdoor learning/education programme to take place in schools, not just Forest School, where natural landscapes are created for pupils' engagement in nature-based activities recognising the significance of

nature's influence on children's learning and play (Dowdell et al, 2011; Gill, 2007; Lloyd & Gray, 2014; Sharma-Brymer & Bland, 2016).

**1.3 Summarising issues of Forest School framework**

Critiques of the current Forest School trajectory highlight discrepancies in understanding the effects and potential benefits of Forest School education programmes. A major issues is the lack of theoretical framework that supports both the design and delivery of Forest School opportunities in different contexts and research on effects of Forest School education (Knight, 2011; Waite et al 2016; Leather, 2016). The fundamental discrepancies are related to how Forest School programmes are offered to school children in different cultural contexts, who are currently the largest participants or clients. Additionally, how Forest School leaders emulate the twin focus of personal development and environmental education for children as a programme without understanding the philosophical relevance is concerning (Leather, 2016; Maynard, 2007).

Forest School is premised on the notion of providing opportunities to children for self-initiated and self-guided play, and hands-on experiential learning in an outdoor environment (Massey, 2005). Practitioners view the child as naturally competent and justify the ethos by focusing on assumptions that this process builds relationships, social skills, and emotional development, besides self-esteem which is considered to be the most important aspect of development through Forest School (Maynard, 2007). However, in practice Forest School does not necessarily always meet these ideals and objectives because, 1) programmes are often structured, 2) self-initiated play has an inherent element of adult control over children's decisions and choices, 3) safety and risk management are overemphasised as crucial throughout, especially in activities related to using tools and fire, and 4) activity sessions are time-limited (Harris, 2017; Waite et al 2016). In practice, Forest School has considerable differences and a few commonalities to its counterpart Danish *udeskole* model. Play pedagogy and nature-based activities, core concepts of Forest School practice, may lose out to a standardised practice with less understanding of what inspired it all – the Scandinavian philosophy of *friluftsliv*.

Moreover, the practice is in danger of becoming another well-marketed neoliberal product aiming to create large cohort of low-skilled practitioners (Leather, 2016). Also, there is an overemphasis on developing 'confidence and self-esteem' through participating in repeated and regular Forest School programmes. This not only downgrades the importance of learning about nature but also suggests the weak position of schools in children's lives (Maynard, 2007). To this end, Leather (2016) has cautioned against adult judgements and measurement of a child's self-esteem. The ethos of child-centred method viewing the child as a natural learner with competency weakens its own principle when adults measure the outcomes of an experience. Progressive educators have always stressed the point of 'not developing children' because children are natural learners in ideal learning environments. If such appropriate learning environments are provided children's learning experiences along with their emotional intelligence will develop as per their abilities, learning styles and multiple intelligences (Bland & Sharma-Brymer, 2013).

Adopting Forest School programme in other countries spells out the issue of suppressing local and indigenous knowledge and perspectives that are specifically place-bound. For example, Australian Aboriginal and Torres Strait Islander cultures, worldviews and perspectives are deeply connected to landscape/place (Stewart 2008). Over the years of academic research, there have been considerable efforts to include these views in Australian school curriculum (Hart et al. 2012). Modifying the UK model of Forest School to Australian context (and other countries) might further promote Eurocentric knowledge over Australian indigenous knowledge. Once again, the neoliberal product imported into a previously colonised country may endanger its land, people and their ancient wisdom cultures. Even if the model is 'contextually adapted' to the local environment (for example adapting activities to account for poisonous animals) it may still impose an imperial product which, in future, might force countries, who have adopted Forest School model, to ignore their own local knowledge and perspectives of life.

In summary, the benefits of Forests School are potentially broad and linked to both benefits for people and planet. However, there are individual, social, physical, cultural and philosophical differences between the original Scandinavian context that gave birth to the Forest School notion, the current UK Forest School framework as a neoliberal product and

importing that product into other countries and its performativity (Bentsen et al., 2017; Leather, 2016). Equally, there seems to be an undue over-projection of Forest School as a medium for the development of personal characteristics deemed to be appropriate for a child's development to the detriment of philosophical perspectives that emphasise connection to nature. For some this developmental trajectory is problematic. There is need for a theoretical framework that recognises these nuances to guide practice and further research. We present the Ecological Dynamics theoretical framework with its focus on affordances and the person-environment scale of analysis to guide the design and implementation of Forest School concept. Our argument here is that Forest School should not be limited by a one-size-fits-all approach, especially in its educational experiences of engaging a child outdoors, outside the classroom, in nature-based activities. The benefits obtained from Forest School practice, as we argue in the following section, are about realising and attuning to affordances which have sociocultural and individual connotations. The role of the Forest School facilitator could be harnessed to guide children towards identifying affordances in nature.

## 2.1 An overview of Ecological Dynamics theoretical perspective

The lack of a theoretical framework guiding Forest School practice and its capacity to respond to different cultural and individual requirements suggests the need for a holistic and multi-disciplinary theoretical approach. An appropriate theoretical understanding will effectively encapsulate and develop current diverse approaches to research and practice in Forest School applications. It will allow for individual differences and cultural requirements. In this section we outline and discuss Ecological Dynamics as a theoretical framework that fits the purpose stated above.

Ecological Dynamics (ED) stems from ecological psychology and dynamical systems theory (Brymer & Davids 2012; 2014). ED conceptualises an individual as a complex dynamic system (Kelso, 1995) composed of many interdependent, interacting subsystems or domains (e.g., physical, cognitive, social, emotional, spiritual and so on). It is a well-established framework for understanding human learning and behaviour in many associated fields such as environmental education, experiential learning, and health and well-being settings, as

well in a variety of related fields such as health, psychology, sport, and adventure sports (Brymer & Davids, 2012; Brymer & Davids, 2014; Brymer, Davids, & Mallabon, 2014; Sharma-Brymer, Brymer, & Davids, 2015; Brymer & Davids, 2016; Clough, Houge McKenzie, Mallabon & Brymer, 2016; Davids, Araujo & Brymer, 2016; Yeh et al., 2016). The ED framework is ideal for guiding Forest School practice and research because it proposes that learning and behaviour are grounded in an interactive and mutually reinforcing relationship between the person and environment. ED is a functional approach that argues that human behaviours are best understood through studying the person-environment relationship, where the environment captures both social and physical constraints on behaviour (Newell, 1986; Brymer & Davids, 2012; 2014; Dunwoody, 2006).

There are a number of key conceptual ideas in the ED framework that reinforce learning and learning design for Forest School stemming from the notion of *affordances*: *form of life*, *effectivities* and *representative design*. Affordances, described as invitations for action stemming from relationships between an individual and their environment, unite the objective nature of the environment with the subjective nature of the individual (Gibson, 1979; Withagen, De Poel, Araujo, & Pepping, 2012). The notion of affordance is not meant to suggest that all invitations are always good for the individual, and in fact, Gibson was quite clear that sometimes affordances can be harmful:

> What the environment offers the animal, what it provides or furnishes, either for good or ill [...] something that refers to both environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment (Gibson, 1979, p.127)

An environment described in terms of 'affordances' changes the emphasis from a description based on form to an active and functional description, which emphasises behaviours that emerge from continuous interactions with an environment. For example, landscapes traditionally described in terms of structural features, such as colour, height, length, aesthetics and so forth are now deemed to consist of climbable features, apertures, gaps, paths to traverse, openings that offer shelter opportunities, mouldable materials for use as tools, textured and uneven surfaces that offer support or the potential to falls from,

flat surfaces, smooth surfaces, graspable surfaces, attached objects, and non-rigid objects to negotiate (Brymer et al, 2014). From an ED perspective, affordances can also be social, emotional and cognitive (Brymer et al., 2014).

The notion of a 'form of life' describes both the common and potential behaviour available to a specific group of organisms (e.g., human beings) and how the group interacts in and with the world around them. Human habits, customs, beliefs, attitudes, feelings, desires, ways of doing things that prevail in everyday life encompass 'form of life.' This might, to sum up for example, manifest as cultural tendencies or patterns of behaviour (Rietveld & Kiverstein, 2014). For instance, high trees afford shelter for monkeys as a form of life but for birds, as a form of life, they also afford launching pads for flying. Flying is not available to the monkey's form of life. 'Effectivities' are the skills, capacities and capabilities that an individual (who belongs to a form of life) might bring to an interaction with an environment (Stoffregen, 2003). These effectivities can be constrained by the environment (such as urban design, and cultural or social mores or habits), which might mean that while a form of life has the capacity to realise certain affordances, an individual's effectivities could be impoverished by an environment. Effectivities are time-bound and can be developed as a result of positive environmental constraints. When effectivities compliment affordances they support the perception and possible realisation of affordances. This perception leading to a clear understanding results in conscious interaction-action.

ED conceptualises a learner as a complex, open system in nature. In learner-environment systems, behaviours reflect the individual's interactions with important events, objects and features of specific behavioural contexts. Learners come to learning contexts with dispositional characteristics that include many physical, cultural, emotional and psychological influences that act to constrain the development of new behaviour (Chow et al., 2011). Learning is recognised as an individualised and nonlinear process characterised by regressions and progressions, skips, jumps and transitions, as well as periods of stability. What this signifies is that each learner will realise relatively unique behaviours in his/her own time. From this viewpoint, learning is an iterative process of perceiving and acting upon affordances impinging on each individual during his/her personal development.

From the ED perspective effective learning emerges from the dynamic relationship between the person and their environment. Emergent behaviours are neither completely predictable nor random. Learners achieve stable learning patterns based on the interaction between individual constraints and those inherent in the task and environment. The implication of this idea is that educators need to design activities where the task and environment are conducive to the emergence of an intended learning outcome. This means that designers of learning episodes need also to recognise appropriate affordances based on intended outcomes. For example, if the intention is to facilitate Forest School for personal development and enhance connection to nature then the tasks designed in the Forest School learning episode and 'space' will need to provide a valid simulation which represents the relevant characteristics of everyday life, particularly the information available to support actions. Representative learning design emphasises the relationship between effectivities and the environment and refers to the process of ensuring that key learning elements in the real world are accurately represented in the design of the learning space. This does not reflect a requirement for physical representation but that essential information in the everyday world (e.g. social, emotional, communication) should be accurately reflected).

For example, an Outdoor Education (OE) leader facilitating an organisational team development activity may need to mirror the organisational culture (including leadership style) if learning is to be effective in the work place. Equally for school-based programmes to be effective the OE design would work best if it represents the everyday context of the school group. This notion suggests that forest school practitioners must not only develop a mastery of knowledge and experience in specific activities but also a profound grasp of key, relevant information inherent in learner's everyday life. Forest school practitioners can use this knowledge and mastery to design effective, relevant learning experiences ensuring that a learning context is a faithful simulation which is representative of a performance/ behavioural context (Davids, Button & Bennett, 2008; Pinder et al., 2011). Hence identifying affordances not only in a woodland environment but also from within the learner's community life enriches learning experiences as more authentic and away from classroom teaching.

Thus, it is important to ensure that task design in the Forest School practice context reflects outcomes in the intended behavioural context (e.g. the everyday world) (Pinder et al., 2011; Brymer & Davids, 2014). What this implies is that the Forest School practitioner must recognise the most important physical, psychological, social and cultural processes that exist in an everyday environment and design tasks that represent the everyday experiences. It is important to determine the constraints apparent in the life context of the individual in order to design a programme that best meets the individual's behavioural needs.

However, this is not without its complications – as there are also specific factors that might interfere with the learning experience. Environmental, task or individual constraints that limit the rate of learning and development in an individual are termed as rate limiters. For example, rate limiters might include emotional readiness of participants, leader or practitioner's capacities or task relevance. The ED perspective suggests that aspects such as the learning design and the teaching methodology or focus might act as rate limiters, further suggesting support for a more expanded understanding of learning (Courtney-Hall & Rogers, 2002; Maitney, 2002). Other typical rate limiters include the physical environmental learning context, and relationship between the facilitator and participants. A skilled Forest School practitioner can manipulate activities in such a way to limit or indeed remove the effect of those rate limiters that are most obviously hindering learning. However, this also means that the practitioner will need to be skilled enough at determining an individual's needs in order to manipulate the task (or environmental) constraints to best draw out the intended learning process that the participant desires to engage with. A Forest School context that focuses on differentiating the 'forest' learning space from the everyday space might act as a rate limiter if the differentiation becomes the focus. However, this notion does not necessarily mean that the Forest School learning 'space' needs to be the same as the everyday 'performing' space; merely that the most salient affordances need to be apparent in the leaning space for long term and relevant learning to take place.

Forest school practitioners also need to attend to opportunities (affordances) for learning. A key question is: What does this specific object, feature, situation or context offer each individual learner? An ecological approach differentiates between knowing something abstractly (providing *knowledge about* something) and a deeper more profound experiential knowledge about an

environment (*knowledge of* what an environment offers or invites) (Gibson, 1979). The fundamental nature of this differentiation emphasises the importance of active learning in the environment (Gibson, 1979; Araújo & Davids, 2011). The implication of this idea is that learners need to be placed in representative learning environments where they can become attuned to information which provides knowledge of the environment to enable functional behaviours to emerge such as perceptions, emotions, as well as opportunities for decision making and action. Affordances for action capture the deeply intertwined relations between cognition, perception and action, which may change as a function of time and context, for instance with experience and expertise in a specific task.

In summary, for any behaviour to be functional a learner must first perceive and interpret relevant information (in the form of knowledge of the environment), which in turn will support the emergence of relevant functional cognitions (manifest in knowledge of an environment) and actions to achieve a specific behavioural goal. In ecological dynamics, knowledge of the environment is gained through perception of information from the environment through continuous interactions. Perception is gained through action and further action provides opportunities for perception. An individual's behaviours are predicated on the mutuality of the perception-action sub-system which has a cyclical structure. The coupling of action and perception systems is strengthened through a process of attunement to relevant information to gain knowledge and support functional behaviours. Effective perception-action couplings emerge from effective learning leading to sustainable behaviour changes, and the learning context must provide simulations which are representative of the everyday activity. Reducing an intended behaviour to decomposed parts (to artificially reduce the information load on a learner) or designing tasks that encourage behaviours to emerge out of context breaks up this process of information-behaviour coupling. These traditional aspects of learning design can prevent learners from basing their actions on knowledge of the environment and can prevent them from using actions to gain further knowledge. The result may be an unproductive development of less functional behaviours that may not transfer to everyday life contexts.

## 2.2 Application of Ecological Dynamics to Forest School

A foundational consideration for ED is the person-environment relationship. This notion encourages a more individualised approach to learning and provides a useful framework for

designers of learning to make the experience for the student more personalised and meaningful. ED proposes that we are embedded within a landscape of affordances or invitations for action that can support our continuous interactions with an environment (Gibson, 1979). However, the everyday life context often means that affordances available to a specific individual are impoverished when compared to the rich potential available to the form of life. As individuals we are often limited in our capacity to realise our potential which means we may only perform a small percentage of what we are capable of doing (Stoffregen, 2003). A human being's everyday effectivities are limited as a result of the everyday life context involving commonplace issues. Forest School is a wonderful opportunity and an ideal medium for the expansion of effectivities and realisation of affordances not otherwise available to the individual (Brymer & Schweitzer, 2015; 2017) but potentially available to the form of life. Changed lifestyles and the ever increased reliance on technology coupled with the desire to make the everyday life context safer means that this trend is intensifying (Brymer & Schweitzer, 2017). As such, while the individual becomes skilled at acting on potential affordances in the everyday life context, an expanded landscape of affordances would include a richer array of possibilities. If effectively designed, the Forest School experience facilitates a dynamic person-environment relationship that has the potential to expand effectivities in a cultural context. Forest School provides a richer landscape of affordances that augments variability of experience as the learner learns to adapt his or her behaviour in order to realise an array of affordances that might not be available in the everyday life of the individual, but that are never-the-less available to the form-of-life (Rietveld & Kiverstein, 2014).

In the above described context, Forest School practitioners will need to carefully consider the goals of the learning process, key affordances and individual effectivities based on the person-environment relationship in order to design effective learning experiences. For example, the environment might afford a deeper relationship with nature for the learner attuned to perceiving and acting upon that affordance. However, the same environment might cause stress for the person attuned to nature as dirty, wet and cold or social interaction for the person attuned to perceiving social affordances. Based on this premise, the Forest School practice provides access to a rich landscape of affordances which can be realised differently for different people with different effectivities and needs. As such, while

the activity might look the same from the outside the invitations will differ and depend on effectivities of each person. In this way, the relational aspects are emphasized and the learner extends their capacity to realise some of the spectrum of affordances available to human beings that might not be available in the everyday life context (Bruineberg & Rietveld, 2014). The challenge for the Forest School practitioner is to represent the everyday life context so that the learning continues beyond the learning experience and is sustained in the everyday life of the individual.

As affordances can be obscured (Ewert, Sibthorp & Sibthorp, 2014), the Forest School practitioner might need to design tasks that guide the learner towards the perception and action of a broad range of affordances that might otherwise have been missed. This process requires care and the realisation of individual differences as affordances that might be good for one person might equate to affordances for ill for another if effectivities are not compatible. Forest school thus becomes a context whereby the person-environment relationship is emphasised and individuals learn to perceive and action a richer landscape of affordances than available in everyday life, which in turn helps the individual realise their capacity for action and volition. For example, swings are common in most public parks which children use frequently. In a Forest School session a team of children could perceive the possibility of creating a swing by tying logs together with ropes and then attaching to a tree branch may also realise variations of log and rope combination. The role of the practitioner is to ensure that important individual and environmental characteristics are determined in order to design tasks and/ or interactions with the environment to enhance the important relational features in a manner that recognizes the everyday life context of the learner. This view on Forest School supports learning for health and well-being, sustainability and conservation (Brymer & Davids, 2012). When viewed in this light, Forest School practice has the capacity to balance the relationship between people and the environment in a manner that enhances the well-being of people and the environment.

Understanding and adopting an ED framework would allow Forest School practitioners and also trainers to contextualise experiences at a cultural and individual level to avoid a standardised, 'one size fits all' approach. Particularly relevant is the creation of an affordance landscape, which involves inclusivity and an emphasis on different fields of affordances being available for exploration. From this perspective, Forest School could then

become an essential provision in the current climate of formalised learning where time, safety and technology have contributed to limiting human interactions with the world around them and reducing the interactions with the landscape of affordances available.

Working with task constraints is the easiest way to guide learning. This process can be as simple as ensuring that if a forest school event has been designed to facilitate sustainable behaviours, then the activities chosen should represent sustainable practices in an everyday context. However, task manipulation might also happen during a predesigned activity in order to facilitate the learner's search for knowledge of the environment and for actions which can support the acquisition of this knowledge. This process should not be underestimated as working with tasks in this way requires skill and manipulations undertaken carelessly lead to artificial learning environments which end up not being representative of behavioural contexts. ED as a principled theoretical framework can help Forest School practitioners avoid artificial learning design in order to emphasise a specific aspect of behaviour. The principles of representative design enable learners to attune to key information sources which act as affordances for action. Setting appropriate challenges for learners to pick up affordances for behaviours can be a confronting task (Cordovil, 2015). A key skill is identifying the most important aspect that an individual needs to work on at any specific stage of his/her personal development. Practitioners must be able to identify whether manipulations will enhance the intended learning process or act as a "rate limiter". This confirmation process needs to be ongoing as task constraints are dynamic, and due to the changing knowledge, skills and development of each individual, they can emerge and decay over time (Guerin & Kunkle, 2004). Task manipulation is reliant on individual, group, environmental and time contexts.

As mentioned earlier learning is viewed as a holistic journey centred around the key processes of perception, reflection, knowledge acquisition and action. This approach is ideally suited to understanding and instigating behavioural changes over the timescale of learning i.e. months and years. In Ecological Dynamics, the interplay between the learner, the educator, the task, the social context and the physical environment are considered essential to the learning process. This interaction is important because the learner is considered central to the experience and the interaction between the learner and the

environment is a key relationship in the learning process. Perception, action and reflection are of paramount importance and need to be understood with respect to the learner-environment relationship. The ED perspective acknowledges that learning is not an isolated mental process and cannot be separated from the behavioural context since it emphasises the importance of providing experiences, as distinct from instructions, as a means of facilitating learning.

From this viewpoint learning is dynamic and unpredictable. This does not mean that a Forest School practitioner cannot carefully design and plan to facilitate an experience. Arguably, it places more emphasis on the appropriate learning design and facilitation of experiential activities in the learning space. The activity needs to be designed to allow behaviours to emerge. Forest School activities must be carefully planned to accurately represent the relevant aspects of their everyday behavioural and performance requirements.

Forest School programmes need to allow individuals to express their behaviours in relation to affordances designed into learning tasks. The emergent nature of learning and the notion that a learner self-organises (self-adjusts and adapts) suggests that Forest School practitioners, if they are low-skilled and lacking an understanding of Scandinavian philosophy of outdoor learning, cannot presuppose that there will be a single, specific response to a particular problem from each individual. The practitioner must also develop the communication skills to ensure he/she remains learner-centred throughout the whole learning experience. These expectations actually suit diverse physical, social and cultural settings.

Forest School practitioners recognising the significance of affordances in an environment and then designing learning activities and tasks will enrich the experiential processes of self-awareness, self-regulation and self-motivation aspects of the 5-Star model of Forest School Education (also known as Archimedes Trading). However, the expectation that participating children will develop and demonstrate the other two Star points of empathy and social skills (with scaffolding) has strong cultural connotations to the UK society. Within the ED perspective personal learning experiences that are varied from individual to individual are more significant than measuring the development of social skills and empathy in a participant. As well, designing activities will surpass the current standardised structure of tools, fire, nature art and crafts and team games. Perception of affordances will benefit

Forest School model to become, as opposed to a marketed product, a flexible way of doing any local culture-specific and philosophy-oriented learning activities in nature. Learning outside the classroom (such as *udeskole*) is not a brand or a method or a technique. Philosophically expressed, it is a process of developing our worldview. It is a way of learning by experience in childhood from diverse sources outside four walls of a school building (Bland & Sharma-Brymer, 2013). Most children like to play and do engage in a variety of play when they have freedom, less adult control and less adult interference with instructions (Sharma-Brymer, 2016). Rather than seeing a particular model or programme 'developing' a child it should be that appropriate conducive environments be presented to children. Experiential learning will benefit children most when individuals engage with affordances present in the environment. Identifying the benefits of designing affordances will enhance the positive impact of Forest School on participants for their overall health and well-being.

**Conclusion**

The Forest School concept, if it is to remain true to its ethos of connecting with nature, holistic development and for human well-being, will become an avenue to address not only childhood health and behavioural problems but also may provide many opportunities for diverse adult populations and the well-being of our planet. Current developments in Forest Schools have been critiqued as being overemphasised in its methodology with a claim that the programme develops children's self-esteem. It also has moved away from its original influence – its Scandinavian focus. Increasingly, it has become compartmentalised turning the Forest School brand into a neoliberal produce which potentially will endanger diverse cultural contexts, local and indigenous knowledges if imported into other countries. Although social constructionism may explain Forest School framework in its play and meaning-making process, the practice itself needs a better theoretical understanding. In this paper we have overviewed the development and issues of Forest School framework in the UK recognising that a theoretical framework to guide learning design that takes account of individual and cultural needs is called for. We have presented an Ecological Dynamics theoretical perspective to understand Forest School practice that supports a learner-centred approach and emphasises the realisation of affordances in the person-environment relationship. Forest School can be contextually, culturally and individually appropriate but still should guide learning for the benefit of people and the planet. For this reason, the

Ecological Dynamics theoretical understanding is ideal for guiding Forest School framework and research on its practice as it expands further as a model.

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