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Creativity and tool use in play settings

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This information sheet explores the relationship between play and creativity, looks at the associated benefits for children, considers theories that relate to providing for play and creativity and provides some helpful hints and tips. Creativity is a capacity that is well supported through play. So, when we support children to access and express their right to play we are also supporting children's creative expression and development.

For children to have quality play experiences, playworkers create rich play environments where there is an atmosphere of permission, flexibility and freedom.[1] Quality play environments should enable children to feel they can alter the space, can participate and choose what happens, and have as much control as possible over how it looks and what it contains. Quality play environments become a canvas for children's creative expression through play.

Creativity comes in many forms – it shows itself in different ways in different people, from compiling a music playlist for holidays, to experimenting with cooking or baking, or picking colours for a decoration project. We are all creative in one way or another, yet often as adults we feel we are not creative or may have been led to believe that we are not by influential people in our lives – children are no different.

Creativity and play

Creativity in play is as much about generating problems as it is about problem solving. It's about developing ideas, imagination, self-expression, experimentation and asking, What if?. Creativity is about engaging with novelty in everyday life. The benefits of having freedom, encouragement, time and space to be creative are enormous and children will naturally exercise their creativity in their play. Quality opportunities for play have been identified as key to the development of mental skills[2] and self-regulation.[3] These skills enable us to plan, remember and recall instruction, focus our attention, interpret, predict, evaluate and respond effectively to socio-emotional and cognitive experiences and multi-task successfully.

Play also supports the expression and development of a growth mindset – where individuals come to recognise themselves as learners and problem solvers, so in turn rely less on the support of others.[4] Play supports the expression and development of divergent thinking – the ability to find a multitude of potential responses to a novel situation[5] as well as the development of self-concept, identity and confidence[6], and social intelligence.[7]

In play, children operate under self-imposed rules and are most likely to try things out that they are not yet wholly capable of.[8] They do this because they understand play to be free of the constraints of the 'real world' and as such free from the repercussions that may occur as a consequence of making mistakes.[9]

Sarah Smilansky[10] and Russ and Wallace[11] suggest socio-dramatic play is important in supporting children to experiment and establish associations amongst things and play around with how they might be combined for effectiveness or re-purposing, important transferable skills. In respect of developmental influence, Howard-Jones[12] proposes a trickle-down effect of play, in that a child given opportunities for self-initiated play without external goals or rewards and without adult constraint will approach play creatively, which results in a greater likelihood of more creativity in other tasks.

Mullineaux and Dilalla's[13] research from a longitudinal study shows a link between pretend play in early childhood and creative thinking and problem-solving capabilities later in adolescence. Children also develop self-esteem, self-awareness and self-confidence whilst playing[14] but perhaps most importantly, they have fun and as result are likely to do more of the thing that leads to those benefits – playing.

Playing with objects, particularly when not focused on a fixed outcome, has been identified as a key contributor to behavioural flexibility and innovation. Riede *et al.*[15] suggest that playing with things – especially miniatures or everyday objects used outside their functional context – enables children to detach from practical constraints and explore alternative uses, meanings, and possibilities. These playful experiments are not merely rehearsal but act as primers for original thinking and creative problem-solving, forming a bridge between open-ended play and later cognitive development.

Children's daily lives are heavily structured, as recognised in General Comment no. 17, published by the United Nations Committee on the Rights of the Child[16], and the Children's Commissioner for Wales' *Spotlight Report: Article 31*.[17] Children may not have many opportunities in their everyday lives to be creative, on their own terms. But, in a setting where adults support their self-directed play, the setting can be a space that compensates children for this lack of freedom of opportunity.

Creativity: investigation, examination and exploration

Joestine Gaarder, in the book *Sophie's World*[18], asks the question: What is the one defining feature about the human race that has made them infinitely more successful and adaptable than any other species in the animal kingdom?. The answer is, we can cheat. In other words, we can investigate, explore potential and create a new, different response to our situation. This every day creativity has enabled humans to successfully adapt to a huge range of contexts and situations.

Furthermore, emerging research in posthuman and new materialist thinking encourages us to reframe creativity in play as an entangled, relational process. In this view, play is not something children do to or with materials, but something that emerges through the co-action of children and materials in context. For example, sand, sunlight, wind and a child all become co-participants in a shared moment of play, each affecting and being affected by the other.[19] This relational perspective highlights how creativity is not simply internal to the child but develops through these material entanglements that support a child's sense of agency, discovery and becoming.

It is this creativity, through investigation, examination and exploration, that playworkers work to nurture in the play space. This isn't so we can produce an end result but because we support children's right to play and children are driven to investigate, explore and to experiment with what they have found as part of their play.

As playworkers we should recognise that children may form powerful emotional attachments to particular objects in the play setting. These attachments can serve as sources of comfort, continuity and identity, particularly for children experiencing instability or transition. Research has shown that certain objects can carry deep personal significance, offering feelings of safety and belonging.[20] Recognising the affective dimension of play with things can help playworkers better support children's emotional wellbeing through their self-directed engagement with the material environment.

So, how do we nurture these types of behaviours in the play space? The following three theories may help.

Combinatorial flexibility

This theory, developed by Jerome Bruner[21], suggests that the materials, tools and equipment available to a child each have a potential flexibility. In other words, different ways in which they can be used. When investigated, explored and combined, a creative new use, if not many new uses, will be found.

The uses that materials, tools and equipment have when combined, are greater than those they had individually. For instance, combine a rope and a tree in different ways and we may end up with a choice of different types of rope swing, or a rope ladder, or a means of hauling planks to make a tree house, or a post for tying up 'enemies', or a pretend snake in the branches, or a place to tether an imaginary horse. Bruner concluded that combinatorial flexibility aided the development of problem-solving skills in the developing child.

Compound flexibility

In this theory Fraser Brown[22] suggests that positive developmental experiences can be gained as a result of a flexible environment. If there is a lot of flexibility in the environment this will lead to opportunities for exploration, experimentation and control by the child, which in turn will produce a wide range of positive feelings (for example pleasure, sense of success or achievement) leading to the development of the affective personality (self-confidence, self-acceptance and self-awareness). This process has a compounding effect in that the more the child feels the positive effects of their use of the flexibility in the environment the more they are likely to approach the same environment with increased degrees of flexibility resulting in more positive experience.

Loose parts theory

The importance of loose parts was an idea developed by Simon Nicholson[23], who suggested that the amount of creativity, inventiveness and opportunity for discovery that we can support within our setting is directly linked to the number of things that are capable of changing or being changed. He thought that all children should be empowered to structure their own play environment, because he believed that

all human beings are creative. Arvid Bengtsson[24] spoke of a place for play being a space where things should turn up that move the imagination on, preferably things that can be manipulated and influenced.

Loose parts, unlike many manufactured toys and play equipment, are non-directional. They don't have an immediately obvious use, so children are more likely to approach their use with an open mind ready for exploration, investigation and examination and as a result combine them in novel and creative ways. Loose parts have also been observed to be inclusive of more children for a number of reasons[25], for example to make best use of a good range of loose parts children will often need to cooperate and negotiate. The nondirective nature of loose parts is also non-exclusive – no one is an expert, so more children readily join in. They have also been shown to increase physical activity, particularly amongst those children often isolated from opportunities to be physically active[26] and they broaden children's friendship networks supporting extensive and complex social play narratives.[27]

Some researchers suggest that toys and loose parts should not be seen as inert objects waiting to be used, but as active participants in play that invite children into moments of transformation and identity exploration. Levinovitz[28] proposes that toys are not defined by their physical properties, but by their capacity to become invitations to play. In this view, a toy is whatever sparks a question in the child's mind – What could I make of you? – and this invitation is context-dependent and always shifting. This concept closely aligns with Nicholson's principle of loose parts as materials that support creativity through open-ended, exploratory use.

When choosing loose parts for a play setting, we must consider that children will find a far broader use for materials and equipment than we can foresee, so we should provide all kinds of loose parts. The broadest possible range will allow for the greatest degree of inventiveness, creativity and play. This means we need to be resourceful.

If we have one close by, we can find all sorts of supplies at a local scrapstore but many loose parts are available for free (and often not available in shops or catalogues). We can collect bits and pieces, or we can source resources from businesses, or visit the forest and pick up nature's windfall. If we live near a local second-hand furniture reclamation project, we can ask for their rejects.

On receipt of new loose parts, as with all resources, we must ensure they are checked thoroughly and are assessed in terms of risk versus benefit. We check for potential hazards and discard or adapt them, so they are fit for children to use.

For practical guidance about loose parts read our *Resources for playing – providing loose parts to support children's play* toolkit.

It has been developed to support adults in the play, early years and education sectors to provide loose parts play within their settings.

The toolkit is available to download in the Resources library on our website: **www.play.wales/resources-library**

Play: creativity and tool use

When children are encouraged and empowered to engage creatively with the play environment they are likely to build things and (as a result of compound flexibility) their aspirations and ideas will continually grow, inevitably requiring them to engage in self build, construction play and tool use. Some play theorists and key people in the early development of the adventure playground approach, such as Sorenson[29], Lady Allen of Hurtwood[30] and Drummond Abernethy[31] recognise this link between the rich play environment, creativity, construction play and tool use.

These early pioneers of staffed play provision developed their ideas as a result of observing children playing on building sites, bombsites and in natural environments. From their observations, some of them developed the idea of self-build. In the first examples of provision of this kind, adventure playgrounds and city farms often provided children with access to equipment, materials and tools. The children could construct their own dens, forts, go-karts and small play equipment. These constructions or creations were always temporary, some lasting only a few hours, others lasting days or weeks. The children had control, access and permission, with playworkers helping if needed, organising supplies if necessary, and making sure the space and the children's use of it was free from unacceptable hazards.

As time went on both children and playworkers' ideas for constructing and creating developed and the structures became larger and more elaborate – they took more time, effort and resources to build, so they also became more permanent. There is a risk that the original idea of self-build can be over-shadowed by a process involving huge hunks of wood and the need for specialist carpentry skills – to make fixed structures. Arguably, this has resulted in the commonly held idea that self-build only happens on an adventure playground.

However, if we return to the original idea, we can see that structures and equipment don't need to be big or permanent, they simply need to be made by children and that could happen in any play setting – remembering that Playwork Principle 5 obliges us to 'support all children and young people in the creation of a space in which they can play'.[32]

Starting to support self-build within a play setting can be daunting for some of us. Many of us are wary of children using tools in a play setting, just the sound of it may make us think of big heavy materials and potentially lethal tools (where the impact of our decisions could have drastic consequences). This can be enough for us to decide it's a dangerous activity and it should not be carried out by children. However, it's important that we remember that a tool is just something that helps get the job done, something as simple as a pencil is a tool and we aren't afraid of that, as we have learned to use it properly.

Observations of children engaged in construction play highlight how creativity and learning often emerge from interactions with unstable or unpredictable materials. Whether building with planks, foam blocks or reused cable drums, children learn through trial and error – experiencing collapse, rebuilding, and experimenting with balance and gravity. Lester[33] describes these episodes as affective moments in which sensation, materials and movement mix in an experience of embodied creativity. Here, the attraction lies not in completing a structure, but in the joy of negotiating its precarity.

Some of the tools and materials that are useful in supporting children's play include: very little toys, model superheroes and soldiers, animals, bugs, dolls and dolls house furniture, empty match boxes, tubes, lollipop sticks, fabric, net and glue, which are all important opportunities for self-build in 'small world' play. Then there's cardboard, scissors, sticky tape, fabric, tarpaulins, craft knives, string, rope, wood and hammers, saws, and nails that are useful for larger self-build play opportunities. We need to be aware of the potential damage they can do so that we can carry out risk-benefit assessments. We also reflect on our fears or lack of confidence and we should start small, to build our own skills and experience.

Remember that very, very few children want to hurt themselves. The majority proceed carefully when faced with a new skill or idea and they gradually test their physical, emotional and mental aptitude and ability. They are not likely to do things they think they can't, especially in a supportive environment where there is no pressure to take part. But we need to be ready and close enough to offer support if a child needs our support.

Processes, precautions and procedures

Most children have a keen sense of keeping themselves safe and make sensible and logical decisions when they are building. We need to be careful when supporting children's play, recognising that unnecessary adult controls and interventions will alter how children assess their own capabilities and limitations. There are a few children whose perception of danger is different from the norm and these children may need additional support. It's our job to watch out for what children can't foresee and prevent or avoid serious harm.

This may appear to be scary to those of us who have little experience of self-build, but we manage many scary aspects of our daily lives without much problem because we have gradually developed our skills and gained experience. For instance, cooking is a potentially dangerous task involving heat, boiling liquids and sharp knives. However, when we first start to cook we would perhaps make our own jam sandwich and progress to making toast or boiling water for coffee. We don't start by filleting fish or making a caramel basket out of molten sugar. Self-build is no different.

If the task in hand is one we haven't encountered before, we start by weighing up the pros and cons – we try to establish what might go wrong if we mess up and we generally start with small steps. The steps get bigger and more sure-footed the more our experience reinforces our confidence.

The Wobble, Waggle, Weight Test

In our daily lives, when we are unsure of something's structural stability we test it out before making a judgement as to whether it's safe. For example, if we come across stepping stones in a river – before we step across, we test them by wobbling them while resting our weight on something we know and trust.

This is a good guideline for self-build. If in doubt that a structure is stable, we wobble it, waggle it, and put some weight on it. If it's strong enough for an adult, we can be confident it will be strong enough for most children.

We need to consider that some children and teenagers may be heavier than us, and that several children together may not be safe on a structure that has been tested as safe for only one child. Structures also deteriorate with time and use – we need to do the wobble, waggle, weight test regularly in the life of a structure. It doesn't take long to check structures before and after every play session. If a structure wobbles too much, waggles easily, or collapses during the test we encourage the builders to find solutions – we resist the temptation to take over and fix it for them.

Clearing up

The way we operate in the play setting can send messages to children about their ownership of the space and the things they make within it. For instance, if we are always tidying up, putting away and cleaning, we give the impression that we care more about the way the setting looks than the children in it, and we can potentially stop them from being creative. To avoid insensitivity, we always monitor what is going on in the play setting. We watch and listen to what is happening and consider our decision to clear up or leave the materials, equipment or structures for children's continued engagement.

We consider things, such as: Is the equipment/ creation still being used? If so how? When was the last time it was used? What state of repair is it in? Does it pose an unacceptable hazard? Is it interrupting the flow of new play opportunities? If it were removed would it stop the flow of play? We reflect and learn from our actions. We try again. We recognise that we won't get it right every time and we won't do any deep and enduring harm by making the wrong decision occasionally.

Top tips for working with tools

- Identify and use the 'right tool for the right job'. This drastically reduces the risk of accident or injury – and knowing the right tool is largely common sense. For instance, holding a saw by the blade to use its handle to hammer a nail is likely to result in injury.
- Make sure tools are stored safely, out of the damp and always in good condition. Saws should be disposed of when they are no longer sharp. Mistakes are much more likely with blunt saws and other damaged tools.
- Hammers come in different weights and saws in different lengths, as do spades, shovels and other landscaping tools. Having tools of different sizes enables children to have the control they need to be confident and competent.
- Support those who haven't used specific tools before and withdraw when they are capable and confident.
- Use dynamic risk-benefit assessment to decide when to alter the level of support.
- Use knowledge of the children's capabilities to inform decisions about the level of support needed.
- Remember we aren't teachers showing children how to use tools. We are supporting their play and their self-directed experience.
- Promote support between children. Having enough tools and a big enough space helps collaboration and cooperation.
- Consider whether it's reasonable to expect a particular child to be able to control a particular tool without harming themselves.
- Monitor access to tools closely. It's important to always know how many tools are in use and who has them.
- If circumstances change, re-assess. If the play environment suddenly gets much busier, we sense a volatility in the atmosphere or we have an influx of children unaccustomed to tool use, we consider temporarily reducing the number of tools available.
- Don't let a lack of experience stop you trying new things. There are numerous video sites that we can learn from. The principles of building a platform, a stage, a jumping off or clambering over box are all the same as those for building a sturdy decking.
- Practice, experiment. If you don't want to whilst you have a duty of care then practice at home. Visit your local builders' merchants and ask if they have any spare pallets or off cuts of wood for you to practice and experiment with to increase your confidence.

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Additional resources

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Play Wales is the national organisation for children's play, an independent charity supported by the Welsh Government to uphold children's right to play and to provide advice and guidance on play-related matters.