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Play Wales

Thinking about loose parts in school

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This information sheet aims to provide practitioners in the education sector with information about the use of loose parts play materials during playtime and in the classroom. It explores and presents a range of research that discusses loose parts playtime interventions and reports on findings from a specific lunchtime study. It offers examples and tips on how using and providing loose parts supports child-led learning in a school setting. And finally, it contains a useful appendix which sets out research regarding how play and playing supports: learning and development, physical activity and health and wellbeing.

About loose parts

The theory of loose parts was first proposed back in the 1970s by Simon Nicholson[1], who believed that it's the loose parts in our environment that empower our creativity. Loose parts are materials with no specific set of directions that can be used alone or combined with other materials, therefore can be used in any way that children choose and can be adapted and manipulated in many ways. Loose parts can be natural or synthetic. Loose parts are materials that can be moved, carried, combined, redesigned, lined up, and taken apart and put back together in multiple ways.

Types of loose parts

Type	Examples
Nature	Sticks, rocks, pebbles, flowers, leaves, seeds, pinecones, wood cookies, moss, shells, acorns, pods, logs, feathers, cinnamon sticks, star anise, pasta shapes
Wood	Blocks and planks in various shapes and sizes, corks, clothes pegs, wooden beads, chair legs, dowels, wooden blocks, scrabble pieces, wooden buttons, wood rings, puzzle pieces, egg cups, curtain rings, wooden cotton reels, lollipop sticks, empty picture frames, train tracks, wooden people and animals
Plastic	Milk bottles, lids, food containers, pvc pipes, film canisters, hair rollers, straws, CD cases, beads, bubble wrap, cones, buttons, funnels, golf tees, balls, hula hoops, clips, shot cups, buckets, cups, flower pots, tubing, guttering, LED candles, rolls of fake grass, handles, Lego, rubber bands, plastic people and animals
Metal	Nuts and bolts, washers, bangles, pipe cleaners, tin foil, muffin tins, magnets, keys, forks and spoons, metal lids, hair clips, tubes, cans, springs
Ceramic and glass	Tiles, beads, gems, sea glass, mirrors
Fabric and ribbon	Chiffon, twine, ribbon, scarves, flags, hessian, cotton wool, cushions, pom-poms, embroidery thread, felt pieces, doilies, lace, string, rope, masking tape
Packaging	Cardboard sheets, boxes, wrapping paper, egg cartons, paper scraps, bubble wrap, tubes, cake cases

Playtime interventions

Playtime interventions can include:

- making permanent environmental modifications to the school's outdoor environment
- providing directed and undirected physical activity in the form of sports and organised games
- providing loose parts and supporting free child-led play.

Making permanent environmental modifications to the school's outdoor environment

Children's physically active play and their vigorous and moderate to vigorous physical activity can be increased by interventions that involve playground markings and permanent environmental modifications. However, maximum effects achieved from this form of intervention are reported to be short-lived – up to six months from introduction[2]. Interventions that facilitate directed and undirected physical activity in the form of sports and organised games experience similar challenges with maintaining the effect of the interventions.

Providing directed and undirected physical activity in the form of sports and organised games

Physical activity and participation rates for both sexes record increases with interventions based on directed and non-directed physical activity in the form of sport and organised games[3]. However, these increases in physical activity reduce on completion of the intervention even more quickly than interventions based on permanent environmental change to school grounds[4]. Activity rates raised as a result of organised games and sport were found to return to previous levels on completion of the intervention[5]. These forms of intervention are reported as having lower physical activity rates because of the time spent being directed[6]. Also, they do not afford the same wide-ranging benefits achieved in free play[7].

Providing loose parts and supporting free child-led play

Free play and loose parts interventions result in a range of benefits that extend from those reported in respect of permanent environmental modifications, directed and undirected sports and physical activity interventions.

Encouragingly, these interventions also report the resulting benefits are long lasting[8] and where new loose parts are routinely introduced, benefits are ongoing.[9]

The following example case studies show the impact of loose parts interventions in schools.

A small-scale experimental study, Wrexham Primary Schools loose parts and physical activity project[10], saw playworkers introduce loose parts to primary school playgrounds where levels of physical activity were measured against a baseline over three days. The study found that loose parts play increased moderate physical activity, vigorous physical activity, and moderate to vigorous physical activity against baseline levels of physical activity. Furthermore, loose parts play had a greater effect on girls and significantly increased the amount of health enhancing physical activity undertaken. Anecdotally, children's play increased in complexity, duration and inclusivity through the provision of loose parts[11].

The Lunchtime Enjoyment and Activity Project (LEAP) is another example which introduced non-directive, scrounged materials, and loose parts to school playtimes. Lunchtime supervisors were instructed to only intervene in children's play if they had serious concerns for children's safety. Children's physical activity was noted as significantly increased seven weeks after the project was introduced – and there was still an increase over baseline levels eight months later. Also, an increased complexity in children's play was reported as they engaged in higher forms of play as a result of the introduction of loose parts.[12]

In the Sydney Playground Study, Anita Bundy *et al*[13] identified findings similar to LEAP but also found improved levels of self-reliance amongst the children. As a result of the reduced level of intervention by lunchtime supervisors, children experienced increased independence and began resolving their own difficulties and challenges, whereas prior to the commencement of the project they were more likely to seek support from the lunchtime supervisors.

In contrast to the LEAP and Sydney projects, the Outdoor Play and Learning (OPAL) project looked to improve the experience of play and school for teachers and support staff. The project tried to

support systemic change through the development of policy, practice and provision. This was done through on-going development meetings between the OPAL team, the school and the school community, children and parents. Independent evaluations of the project found that it positively affected the attitudes and culture of the school's understanding and position on play, particularly in relation to risk, adult control, and all-weather play. The associated benefits included:

- school grounds were often creatively altered, opening up more opportunities for play
- changing children's play patterns
- encouraging a greater variety of play behaviours and wider use of time, space and materials for child-initiated outdoor play
- increases in children's enjoyment of playtimes, with a reduction in perceived disruptive behaviour.

There was also evidence that teaching staff valued the instrumental outcomes of the playtime enhancement, particularly in terms of learning and social development[14].

The Isle of Man Play Bins Programme case study

The Isle of Man Play Bins study[15] explored the influence of a playwork led, loose parts-based school lunchtime intervention project. Like the OPAL project the team worked with schools over a period of time to influence policy, practice and provision of opportunities. Usually this support aspect took place over a month and included: the play team providing limited training to school staff, working with the head teacher to ensure policy supported the intended practice, and most significantly the play team took over the management of playtimes. This included modelling playwork orientated practice, enabling school staff to watch and learn and to engage in peer reflection, before handing responsibility for playtimes back to the school staff.

The study looked at two schools (names anonymised) – New School, new to the project having delivered it for one year and another, Old School, in its third year of delivery. A combination of interviews and focus groups were carried out with:

- the playworkers initiating the project
- headteachers
- teachers
- lunchtime supervisors responsible for continued delivery
- school pupils from each school aged nine to eleven years of age.

The quality of experience of playtime

The experience of playtimes was improved for all. There was much more freedom and that was linked with more and improved play. Increased freedom resulted in improved play behaviours.

'It's just more fun, we just used to walk around now we play.'

Child, New School

'It's joyful to see the kids in purposeful and rewarding activity.'

Headteacher, Old School

'It's just magical watching them.'

Headteacher, New School, who had begun taking their lunch outside on the playground most days

This notion of 'joy' and 'magic' continued in responses from the teaching staff.

'I no longer hide in the staff room anymore. Playtime is so entertaining, watching the children, they're so immersed they don't even notice you watching and listening to their discussions. It's a joy to be on playtime duty.'

Staff member, New School

Teaching staff at Old School reported that they found the children calmer and happier – as a result, they were too. Lunchtime supervisors at both schools found lunchtime much more enjoyable and they were quite adamant that if the programme was to be discontinued, they would have to look for another job. This new found love of playtime had not escaped the children's observation.

'There was so few of them (staff) before 'cos they didn't like it and it was worse, now they all come out 'cos they like it and it's better.'

Child, Old School

Quite simply the project resulted in more children playing more of the time. Children at both schools suggested that school was now in many cases better than other places for play.

'School was boring, no one wanted to come now we get here early.'

Child, New School

Inclusion and integration

The project brought about significant benefits for inclusion. Playing with loose parts offers opportunities for creativity and cooperation, innovation, collaboration and compromise and as a result reduces elitism and promotes inclusion. Similarly, the headteachers and lunchtime supervisors at both schools reported that the inclusive nature of the programme resulted in no children appearing to be isolated.

‘It broke down cliques immediately; the non-directive nature of resources reduces the elitism that is a part of more formal sports and promotes inclusion and cooperation.’

Headteacher, Old School

Specifically, teachers, headteachers and lunchtime supervisors reported improvements in inter-age play, children playing together right across the age range of the school community and in inter-gender play, boys and girls playing together. These observations made by adults were validated by the children:

‘The programme has brought the majority of us together.’

Child, Old School

‘Having stuff means we can do stuff, and do it together and do different stuff every day.’

Child, New School

‘I used to be a really girly girl and now I play with everyone.’

Child, New School

Incidents and discipline, accidents and injury

All participants agreed that there were fewer fallings out at playtimes. Children identified happiness as a significant contributory factor and that having a choice of opportunities meant that there wasn’t the same level of contest over few resources as there had been prior to the programme. Children also reported that in times of disagreement it was easier for those involved to find alternatives in their play and as a result of the improved inclusion and integration there were always alternative pupils to play with.

‘There has been a massive reduction in behavioural difficulties and the amount of disciplining [we were having to do] immediately [after] the programme started.’

Headteacher, Old School

Teaching staff at New School reported that ‘We don’t do much discipline, but equipment (loose parts, tree swings, platforms etc.) provides opportunities for deep sanction. Playtimes are now a thing that the children value very much and if sanctions are ever needed then the denial of some opportunities for play was a much stronger incentive than it ever had been before.’

The removal of playtimes as a sanction since the programme was implemented were now incredibly rare. All staff recognised how valuable playtime was to children. Where conflict occurred staff could intervene and use play to support the children’s negotiation, compromise and cooperation or direct children to other play opportunities.

In the most serious of cases requiring some sanction, teachers could now restrict access to certain play opportunities, for example ‘not allowed on the swing this break’. This is a sanction strong enough to make children reflect on their behaviour but one that ensured children could still participate in the playtime and that their right to play was not contravened.

Whilst Play Wales strongly recommends that playtime should not taken away from children as punishment by teachers and school staff, this example has been included to demonstrate the impact of the loose parts intervention in this particular school.

Finally, of significant note, prior to the implementation of the programme, accidents and injuries were commonplace. Mostly this was children using the smallest of injuries, sometimes feigned injuries, as an excuse to get into the Old School building and to avoid spending time outside at playtimes. Teaching staff, headteachers and lunchtime supervisors at both schools observed that since the implementation of the programme there were fewer injuries and fewer excuses to get out of playtime.

‘There were no longer any fake injuries or toilet excuses. In respect of the minor accidents and injuries that can be expected during playing, children would rather have TLC and get back to playing as opposed to getting out of playtime.’

Lunchtime supervisors, Old School

Creativity and learning, thinking and doing

'Well, we learn more playing out now, because we couldn't learn anything when we had just sticks and stones, that we weren't allowed to play with!'

Child, New School

The headteacher of Old School believed that it was the non-directional nature of loose parts that promoted imaginative and creative play as the nature of the resources left the creativity and problem solving to the children. The teaching staff at both schools identified more imagination being used by the children, acknowledging that the provision of loose parts means they can create and then resolve problems creatively. Children at both schools also reflected that they use more imagination and creativity since the implementation of the programme, noting that they are constantly changing and adapting the environment, creating new spaces for play.

The headteacher of Old School felt that children used higher level thinking skills in the sorts of play they were now engaging in and that children play with a growth mind set – observing that children problem solved together, looking within themselves and their group of peers for ways to resolve problems and difficulties rather than deferring to adults.

The headteacher felt that through these opportunities children come to see themselves as learners, with answers inside of them and through this self-determination, commitment and self-reliance children were developing resilience.

The levels of perseverance, determination, and cooperation were reported as 'amazing' by the headteacher of Old School whilst the headteacher of New School noted how well the children managed their own behaviours and in particular how well they managed risk taking in their play. Children at New School echoed this, acknowledging that they learn more in play than they used to and that they learn from their mistakes.

Headteachers and teaching staff at both schools recognised that they were learning more about individual children because they could see their play preferences and the competencies they exhibited in their play.

'In terms of meeting learners' needs it has been a revelation, just watching and learning from children how they can, with permission, enable their own learning.'

Teacher Old School

Staff at New School reported children 'can literally and metaphorically build bridges' in maintaining and negotiating relationships, developing socially and emotionally. The same teaching staff also noted that children that perhaps don't shine in the classroom environment often did in the play environment and as such, they maintained engagement with school life.

Teaching staff recognised that the play opportunities complimented the learning that was on-going in the classroom and were often used to consolidate that learning with play activities being brought back into the classroom or vice versa.

'It's a third classroom, it provides inspiration, or we can be inspired and then just use it.'

Teaching staff, Old School

Children at Old School agreed that a playful school has to be better for children coming into reception, helping them make friends quickly and settle into school life.

A significant outcome reported by adult participants was how much the programme had changed how they thought about children and as a result how they acted towards children. This was also reflected in children's observations of adults.

'We used to stop them doing things all the time, for no reason really, just habit.'

Staff, Old School

'How cruel we were, having all that space and not letting them use it.'

Teacher, New School

'We have become more relaxed, more flexible, there's just no need to be as inflexible as we used to be.'

Headteacher, New School

The lunchtime supervisors at Old School reflected on the benefit of using dynamic risk-benefit assessment and their knowledge of the children and play to inform decisions about intervention.

'We don't really have rules now, we just decide as we go along, it's just flexible with limits.'

Lunchtime supervisors, Old School

The teaching staff at Old School acknowledged that they are more reflective, constantly questioning their approach. The same staff say they now see children as capable, skilful and determined. They have come to view learning as something that is happening across the whole of the school day, as opposed to just in the classroom.

'It makes you step back and think what help they need, what help you can be. Before stepping in to do things for them.'

Teacher, Old School

Finally, the change in adults was noted perhaps most acutely by the children who readily recognised that for the teaching and lunchtime supervisors it had taken time for them to relax, for risk aversion to reduce and for staff to stop worrying, for staff to view children differently and to become happier in their relationship with playing children.

'Teachers used to think that everything was dangerous, now they see it isn't.'

Child, New School

'They got used to us, they aren't scared anymore – they trust us a lot more now.'

Child, Old School

'Less for teachers to worry about, they are happier.'

Child, New School

'We can manage ourselves, no need for them to be worried.'

Child, Old School

'They take more notice, they are more aware of what you're doing and they are thinking about it, and so are we!'

Child, Old School

Loose parts play in the classroom – a case study from Mount Stuart Primary School in Cardiff

We are regularly told in education that the occupations of children in the future have not yet been invented. Jobs are becoming increasingly automated. Many economists believe that the last jobs to be automated will be those that require creativity, problem solving and social skills, so these are key skills for us to focus on in education.

Loose parts play generally develops more skill and competence than most modern plastic toys as children need to use creativity and imagination to create their own worlds. They engage, support and enrich all types of learners and learning intelligences. Open-ended learning, experimentation, problem solving, and critical thinking are all developed through the use of loose parts. These are all important skills to develop in a rapidly changing world.

As teachers, many of us have spent hours creating wonderful small world areas for our children to play with. What happens next? The children rarely play with the area in the way we intended, often destroying our hard work. We then bemoan the children's lack of creativity and provide them with even more structured adult-planned resources, continuing the cycle. Every time we set up an area for the children, we take away the opportunity for them to think about it or imagine it for themselves.

We need to think about why children do not use our small world areas in the way we had imagined they would. There could be several possible reasons for this. Firstly, if the area is set up using an adult's creativity and agenda the children will generally not feel any ownership of the play. They may seek to assert their ownership through destructive play. If you have a class of very well-behaved children, they may play with it in the way you intended, however they will rarely engage in deep level learning if they are merely following a play agenda decided for them. It may also be that the area has been set up at a developmental stage that the children are unable to access at the level of thinking required. It could also be that the children are bored with the toys, as often when children are provided with toys that have a set use the thinking has been done for them by the toy manufacturer.

To develop the use of loose parts effectively in the classroom we need to see the value in the children's creativity, not just our own. Often the children's creations will not display the same level of competence as an adult's, but if we do not expect the children to have the same skills set as the teacher in any other subject area, we should not expect this in loose parts either. Anything that the children create themselves has more value than something we have done for them.

To realise the potential of loose parts there still needs to be teaching and support. We cannot leave a pile of loose parts on the carpet and expect children to progress to expert levels automatically. Loose parts lend themselves well to child-led learning. However, as with any other subject we must carefully observe and identify where children are in their learning, then intervene to progress their learning. We need to think carefully about why and how we are intervening. This could be through modelling, questioning, and demonstrating, either by an adult or peer to peer.

The loose parts theory is about remembering that the best play comes from things that allow children to play in many different ways and on many different levels. Environments that include loose parts are infinitely more stimulating and engaging than static ones. The play environment needs to promote and support imaginative play through the provision of

loose parts in a way that doesn't direct play and play opportunities but allows children to develop their own ideas and explore their world.

Loose parts should:

- Have no defined use. Staff support the children when they decide to change the shape or use of them. Keep adult intervention to a minimum. Loose parts are a springboard for child-centred play.
- Be accessible physically and stored where they can be reached by children without having to ask. The children should know that they can use them however they wish.
- Be regularly replenished, changed and added to. When replenishing, please remember that it is not your job to think about how items will be used – it is the children's!

To create objects, settings and worlds it is always best to have a variety of blocks and planks in various shapes and sizes. Also, include a variety of items from the list provided in the introduction to this information sheet.

Logistics to consider:

- Storage – for example baskets.
- How often you change resources – keep it fresh.
- How much is out at a time – start with a few and build up.
- How you choose which are out – it's the children's job to decide how to use it, not yours. However, you need to have a balance between children's choice and introducing them to new things.
- Variety of sizes.
- Variety of types.

Questions to support an adult-led session or loose parts planning with children:

- What could we make?
- What do we need to include?
- What could we use?
- What are the alternatives?
- What have you made?
- How have you made it?
- How can we modify or improve our construction?

Ways to add additional support or challenge:

- Photos, pictures of scenes, objects.
- Discuss 'My Time' book, story, photo, song inspiration.
- Demonstrate a particular skill, for example balancing, bridging, attaching.
- Model the play – build your own alongside them, leave something out that you have started and ask children to extend.
- Add clip boards, paper, pens and pencils.
- Encourage planning and model drawing prior to building.
- Encourage addition of written signs, labels, speech bubbles, writing a script.
- If there's room on the classroom floor leave creations out for children to add to over time.
- Table-top activities – make a scene, for example night sky, under the sea, zoo, park.

For information about storage, gathering loose parts and other logistical issues read our *Resources for playing – providing loose parts to support children's play* toolkit: **www.play.wales/resources-for-playing-providing-loose-parts-to-support-childrens-play**

Loose parts and Bloom's Taxonomy

Children's thinking during the use of loose parts can be categorised using the same levels as Bloom's Taxonomy of learning. The level of complexity behind their thinking increases as children's proficiency in the use of loose parts develops. The goal is the application and demonstration of higher order thinking.

Representational – remembering and understanding

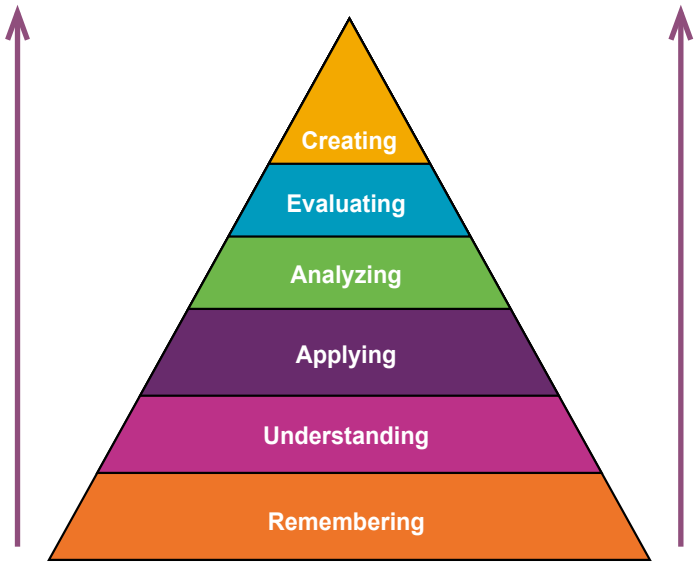
Children begin by making creations that represent an object or place they have knowledge of, for example a cake or a house. These representations begin as simple structures, for example a bead on a log cookie to represent a cake, or an enclosure made of blocks to represent a house.

Complex representational – applying, analysing, evaluating

Children then modify and improve simple structures to create more complex structures where features are applied and analysed, for example a cake with tiers and candles, or a house with a door, windows, bed, sofa and a roof. There may be characters involved, such as a person at the wheel of a car but play with these characters is not developed.

Fantasy structures and dramatic play with complex fantasy structures – creating

Children start to use their imagination to create imaginary worlds. These can be based on reality but are developed using imagination and creativity, for example an ice palace or pirate ship. Children begin to populate their objects or places with people and animals that they use to engage in small world play, re-telling stories that they know and creating their own imagined storylines.



Dramatic play with complex fantasy structures

Fantasy worlds used for dramatic or creative small world play

Fantasy structures

Create your own fantasy world

Complex representational

Modification and improvement

Representational

Re-create something that you know about

Loose parts progression continuum

↓	**Create** What they make	**Design** How they do it	**Use** What they use it for	**Collaborate** Who they do it with	↓
	Maths, engineering, science, problem solving, creativity		**Language, creativity**	**Personal and Social Education**	
↓	Emptying, filling	Sensory touch, raking, rolling	Sensory touch, raking, rolling	Individual	↓
	Carrying	Carrying	Carrying	Alongside	
↓	Stacks, piles, lines	Stacking, piling, lining up	Stacking, piling, lining up	Paired	↓
↓	Bridges	Manipulate small blocks	Making objects, buildings to represent something that they know, have seen	Group collaboration to extend a partially built structure	↓
↓	Enclosures	Small scale structures Variety of types of loose part used	Making complex objects, building to represent something that they know, have seen	Group collaboration from the outset	↓
↓	Representational enclosures	Balancing	Re-telling known stories		↓
↓	Complex representational structures	Manipulate large blocks	Re-tell a known story using different characters		↓
↓	Enhance or modify a structure	Large scale structures	Create own simple storyline		↓
↓	Fantasy structures	Use a variety of block sizes	Create own complex storyline		↓

Appendix

Play: learning and development

Play, and access to quality opportunities for play are linked with learning and development outcomes. Play has been identified as key to the development of cognition, executive functioning capability[16] and self-regulation[17]. 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 to multi-task successfully. Play supports a growth mindset, where individuals come to recognise themselves as learners and problem solvers and in turn rely less on the support of others[18] and divergent thinking (a proxy for creativity) understood as the ability to find a multitude of potential responses to a novel situation[19]. Finally, playing supports the expression and refinement of self-concept, identity and confidence[20] as well as social intelligence[21].

Children at play are interpreting and responding to a whole range of stimuli requiring complex interaction of brain body systems. Play enables children to practice interpretation and comprehension, evaluation and prediction.

Through their playful engagement and interaction with people and the environment, children create a concept of reality rather than merely imitating what they see[22]. Playing children may better be described as developing cognitive competency rather than building a portfolio of specific knowledge or a fund of facts.

In play, children operate under self-imposed rules and are most likely to try things out that they are not yet wholly capable of. 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 be exacted by the real world[23]. Sara Smilasky[24] and Russ and Wallace[25] 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 effect, Howard Jones[26] 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 resulting in a greater likelihood of more creativity in other tasks. Play is also a highly prized vehicle in the improvement of children's physical activity, obesity reduction, health and wellbeing.

Play: health and physical activity

Active play, similarly to sport or physical education, is accompanied by a heart rate that is significantly above resting metabolic rate[27]. Primary school age children's play is often lively and dynamic by nature, consisting of features such as inquisitiveness, flexibility, uncertainty and unpredictability. Features aligned with the maintenance of physical activity, but also as mentioned before executive functioning and intra-psychic capability, the ability to look within one's self for the answer to one's problems[28] whilst remaining both motivating and rewarding[29].

Quality of, and opportunity to play, are directly linked to increases in physical activity levels[30], and to the reduction in obesity levels[31]. When studied over comparable time periods children spend more time in moderate and vigorous intensity physical activity during play than they often do in sport and physical education[32]. Studies have found positive associations between school breaks and teacher scores of classroom behaviour[33], and indicators of cognitive skills, attitudes, and academic behaviour[34]. Pelligrini[35] notes 'recess breaks during the school day both maximise students' attention to subsequent class work and facilitate children's peer relationships as they make the transition into primary school'.

The four UK Chief Medical Officers' physical activity guidelines recognise the importance of play for children's development. The guidelines recommend that children should have as much active play as possible. The guidelines state: 'children are recommended to be active for an average of 60 minutes a day across the week.' The guidelines on physical activity recommendations for children aged 5 to 18 years include:

- All children should engage in moderate to vigorous intensity physical activity for at least 60 minutes per day across the week.
- Children should engage in a variety of types and intensities of physical activity across the week to develop movement skills, muscular fitness, and bone strength.
- Children should aim to minimise the amount of time spent being sedentary, and when possible should break up long periods of not moving with at least light physical activity.

In *Healthy and happy – school impact on pupils' health and wellbeing report*[37] Estyn, the education and training inspectorate for Wales, evaluated how well primary and secondary schools in Wales support the health and wellbeing of their pupils. It noted the importance of school play and break times. The report highlights that schools that apply a whole school approach to supporting health and wellbeing provide an environment, facilities and space to play, socialise and relax at break times. It raises concerns that when schools can't or don't provide these, pupils are less physically active and can find it hard to relax during playtimes which affects their wellbeing.

Play: health and wellbeing

As well as benefits to physical activity and physical health, playing provides other health and wellbeing outcomes for children, such as: attachment to people and place[38], therapeutic effect[39], emotion regulation[40], and reduction in symptoms of ADHD and ADD[41]. Furthermore, in studies investigating subjective wellbeing, children highly value access to play and quality opportunities for play, particularly outdoors[42].

Playing lends itself to the creation of experiences that filter and process conscious and unconscious 'material/experience'[43]. In play, the adaptive systems of emotion regulation[44], stress response[45], motivation and reward[46], attachment[47], creativity[48], and learning[49] are actively engaged. Masten and Obredovic[50] identify these as the adaptive systems of resilience and wellbeing, proposing that if these adaptive systems are functioning healthily they will contribute to a sense of subjective wellbeing and resilience. What research tells us in the simplest terms is that adults reporting a good sense of wellbeing, mental health and resilience are adults with healthy functioning adaptive systems – the same ones exercised through playing.

Playing enables children to create attachments with family, peers, and places through their own self-initiated and orientated action, in turn, supporting the development of emotion regulation capabilities[51]. Play enables children and teenagers to express and experience the full range of primary and secondary emotions, and thus to develop empathy and sympathy and social intelligence[52]. Playing also provides opportunity to pretend, to try out different roles and identities, that enables children and teenagers to express novel behaviours, skills or approaches in a sort of virtual reality[53] where the threat of reprisal or the weight of accountability are less so than they would be in the 'real world'[54] enabling the expression and refinement of self-identity, self-esteem and self-concept[55] as well as interpersonal skills[56]. Play is described as characterised by an interest or predisposition toward the novel, to flexibility and change, and, to the creation of uncertainty[57].

This ability to engage with uncertainty enables children to create situations that have a sense of jeopardy and risk without over exposure to the serious likelihood of harm, in turn supporting the development of healthy stress response systems[58].

Given the range of benefits the research identifies it is no surprise children's play has been the subject of a range of intervention strategies.

Acknowledgements

We are grateful to the following for their contributions and support:

- Debbie Dunkley, Mount Stuart Primary School
- Chantelle Haughton, Cardiff Metropolitan University, Cardiff School of Education and Social Policy
- Ben Tawil, Ludicology

References

[1] Nicholson, S. (1972) The Theory of Loose Parts, Animportant principle for design methodology. *Studies in Design Education Craft & Technology*, 4 (2).

[2] Armitage, M. (2005) The influence of school architecture and design on the outdoor play experience within the primary school. *Paedogogica Historica*, 41(4&5), pp. 535-553.

Hyndman, B., Benson, A., Ullah, S. and Telford, A. (2014) Evaluating the effects of the Lunchtime Enjoyment Activity and Play (LEAP) school playground intervention on children's quality of life, enjoyment and participation in physical activity. *BMC public health*, 14 (1), p.164.

[3] Hyndman, B., Benson, A., Ullah, S. and Telford, A. (2014) Evaluating the effects of the Lunchtime Enjoyment Activity and Play (LEAP) school playground intervention on children's quality of life, enjoyment and participation in physical activity. *BMC public health*, 14 (1), p.164.

Kriemler, S., Meyer, U., Martin, E., van Sluijs, E. M., Andersen, L. B. and Martin, B. W. (2011) Effect of school-based interventions on physical activity and fitness in children and adolescents: a review of reviews and systematic update. *British Journal of Sports Medicine*, 45 (11), pp. 923-930.

Ridgers, N. D., Stratton, G., Curley, J. and White, G. (2005) Liverpool sporting playgrounds project. *Education and Health*, 23 (4) pp. 50-52.

[4] Hyndman, B., Benson, A., Ullah, S. and Telford, A. (2014) Evaluating the effects of the Lunchtime Enjoyment Activity and Play (LEAP) school playground intervention on children's quality of life, enjoyment and participation in physical activity. *BMC public health*, 14 (1), p.164.

Ridgers, N.D., Stratton, G. and Fairclough, S.J. (2005) Assessing physical activity during recess using accelerometry. *Preventive medicine*, 41(1), pp.102-107.

Ridgers, N.D., Stratton, G. and Fairclough, S. (2006) Physical activity levels of children during school playtime. *Sports medicine*, 36 (4), pp. 356-371.

[5] Ridgers, N.D., Stratton, G. and Fairclough, S. (2006) Physical activity levels of children during school playtime. *Sports medicine*, 36 (4), pp. 356-371.

[6] Mackett, R. and Paskins, J. (2004) *Increasing children's volume of physical activity through walk and play*. London, UK: Centre for Transport Studies, UCL (University College London).

[7] Hyndman, B., Benson, A., Ullah, S. and Telford, A. (2014) Evaluating the effects of the Lunchtime Enjoyment Activity and Play (LEAP) school playground intervention on children's quality of life, enjoyment and participation in physical activity. *BMC public health*, 14 (1), p.164.

[8] Bundy, A. C., Luckett, T., Tranter, P. J., Naughton, G. A., Wyver, S. R., Ragen, J. and Spies, G. (2009) The risk is that there is 'no risk': a simple, innovative intervention to increase children's activity levels. *International Journal of Early Years Education*, 17(1), pp.33-45.

[9] Tawil, B. (2017) *How a Play Intervention Programme Influenced Two Primary School Communities: A realistic evaluation*. Unpublished Master's Thesis: Leeds Beckett University.

[10] [11] Taylor, S., Tawil, B. and Baker, S. (2014) *Evaluating the effects of loose parts play on physical activity in Wrexham schools*. Wrexham: Glyndŵr University.

[12] Hyndman, B., Benson, A., Ullah, S. and Telford, A. (2014) Evaluating the effects of the Lunchtime Enjoyment Activity and Play (LEAP) school playground intervention on children's quality of life, enjoyment and participation in physical activity. *BMC public health*, 14 (1), p.164.

[13] Bundy, A. C., Luckett, T., Tranter, P. J., Naughton, G. A., Wyver, S. R., Ragen, J. and Spies, G. (2009) The risk is that there is 'no risk': a simple, innovative intervention to increase children's activity levels. *International Journal of Early Years Education*, 17(1), pp.33-45.

[14] Lester, S., Jones, O. D. and Russell, W. (2011) *Supporting school improvement through play: An evaluation of South Gloucestershire's outdoor play and learning programme*. London: National Children's Bureau.

[15] Tawil, B. (2017) *How a Play Intervention Programme Influenced Two Primary School Communities: A realistic evaluation*. Unpublished Master's Thesis: Leeds Beckett University.

[16] Gayler, K. and Evans, I. (2001) Pretend play and the development of emotion regulation in preschool children. *Early Child Development and Care*, Volume 166, pp. 93-108.

[17] Pellis, S. and Pellis, V. (2013) *The playful brain: venturing to the limits of neuroscience*. Oxford, UK: Oneworld Publications.

[18] Wood, E. (2013) *Play, Learning and the Early childhood Curriculum*. 3rd ed. London: Sage.

[19] Bateson, P., Bateson, P. P. G. and Martin, P. (2013) *Play, playfulness, creativity and innovation*. Cambridge: University Press.

[20] Brown, F. (2014) *Play & playwork: 101 stories of children playing*. Buckingham, Maidenhead: Open University Press, McGraw-Hill Education.

[21] Burghardt, G. (2005) *The genesis of animal play: Testing the limits*. Cambridge MA: Mit Press.

Sutton-Smith, B. (2003) Play as a parody of emotional vulnerability. In: Roopnarine, J. L. ed. *Play and Educational Theory and Practice*, Play and Culture Studies Vol 5. Westport, Connecticut: Praeger.

[22] Hutt, C. (1971) Exploration and Play in Children. In: R. E. Herron and B. Sutton-Smith, eds. *Child's Play*. London: John Wiley & Sons, Inc, pp. 231-251.

[23] Vygotsky, L. (1978) The Role of Play in Development. *Mind in Society*, pp. 92-104.

[24] Smilansky, S. (1968) *The Effects of sociodramatic play on disadvantaged children*. New York: John Wiley & Sons.

[25] Russ, S. W., and Wallace, C. E. (2013) Pretend play and creative processes. *American Journal of Play*, 6(1), 136-148.

[26] Howard-Jones, P., Taylor, J., and Sutton, L. (2002) The effect of play on the creativity of young children during subsequent activity. *Early Child Development and Care*, 172(4), 323-328.

[27] Mackett, R. and Paskins, J. (2004) *Increasing children's volume of physical activity through walk and play*. London, UK: Centre for Transport Studies, UCL (University College London).

[28] Burdette, H. and Whitaker, R. (2005) Resurrecting free play in young children: looking beyond fitness and fatness to attention, affiliation, and affect. *Archives of pediatrics & adolescent medicine*, 159 (1) pp. 46-50.

Whitebread, D., Basilio, M., Kuvalja, M. and Verma, M. (2012) *The importance of play*. Brussels, Belgium: Toy Industries of Europe (TIE).

[29] *The genesis of animal play: Testing the limits*.

[30] Kriemler, S., Meyer, U., Martin, E., van Sluijs, E. M., Andersen, L. B. and Martin, B. W. (2011) Effect of school-based interventions on physical activity and fitness in children and adolescents: a review of reviews and systematic update. *British Journal of Sports Medicine*, 45 (11), pp. 923-930.

[31] Mackett, R. and Paskins, J. (2004) *Increasing children's volume of physical activity through walk and play*. London. UK: Centre for Transport Studies, UCL (University College London).

[32] Mackett, R. L. and Paskins, J. (2008) Children's Physical Activity: The Contribution of Playing and Walking. *Children & Society*, 22(5), pp.345-357.

[33] Barros, R. M., Silver, E. J. and Stein, R. E. K. (2009) School recess and group classroom behavior. *Pediatrics*, 123(2), pp.431-6.

[34] Centers for Disease Control and Prevention (2010) *The Association Between School-Based Physical Activity, Including Physical Education, and Academic Performance* (Vol. 2010). Atlanta, GA: Centers for Disease Control and Prevention.

[35] Pellegrini, A. D. (2009) Research and Policy on Children's Play. *Child Development Perspectives*, 3(2), 131–136.

[36] Department of Health and Social Care, Llywodraeth Cymru Welsh Government, Department of Health Northern Ireland and the Scottish Government (2019) *UK Chief Medical Officers' Physical Activity Guidelines*, Crown Copyright.

[37] Estyn (2019) *Healthy and happy – school impact on pupils' health and wellbeing*. Cardiff: Crown Copyright.

[38] Lester, S. and Russell, W. (2010) *Children's Right to Play: An Examination of the Importance of Play in the Lives of Children Worldwide*. Working Papers in Early Childhood Development. The Hague: Bernard van Leer Foundation (NJ1).

[39] *Play & playwork: 101 stories of children playing*.

[40] *The playful brain: venturing to the limits of neuroscience*.

[41] Panksepp, J. (2007) Can Play Diminish ADHD and Facilitate the Construction of the Social Brain?. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 16 (2), pp. 57-66.

Bundy, A. C., Luckett, T., Tranter, P. J., Naughton, G. A., Wyver, S. R., Ragen, J. and Spies, G. (2009) The risk is that there is 'no risk': a simple, innovative intervention to increase children's activity levels. *International Journal of Early Years Education*, 17(1), pp.33-45.

[42] Ipsos MORI and Nairn, A. (2011) *Children's Wellbeing in the UK, Sweden and Spain: The Role of Inequality and Materialism*. London: UNICEF.

[43] Sutton-Smith, B. (1997) *The Ambiguity of Play*. London: Harvard University Press.

Sutton-Smith, B. (2003) Play as a parody of emotional vulnerability. In: Roopnarine, J. L. ed. *Play and Educational Theory and Practice*, Play and Culture Studies Vol 5. Westport, Connecticut: Praeger.

Hughes, B. (2013) *Evolutionary playwork*. London: Routledge.

[44] Gayler, K. and Evans, I. (2001) Pretend play and the development of emotion regulation in preschool children. *Early Child Development and Care*, Volume 166, pp. 93-108.

[45] Pellis, S. M., Pellis, V. C. and Bell, H. C. (2010) The function of play in the development of the social brain. *American Journal of Play*, 2 (3), pp.278-296.

Pellis, S. and Pellis, V. (2013) *The playful brain: venturing to the limits of neuroscience*. Oxford, UK: Oneworld Publications.

[46] *The genesis of animal play: Testing the limits*.

[47] Ginsburg, K. (2007) The importance of play in promoting healthy child development and maintaining strong parent-child bonds. *Paediatrics*, January, 119 (1), pp.182-191.

[48] *Play, playfulness, creativity and innovation*.

[49] Play, Learning and the Early childhood Curriculum.

[50] Masten, A. and Obradovic, J. (2006) Competence and resilience in development. *Annals of the New York Academy of Science*, Volume 1094: pp. 13-27.

[51] Vygotsky, L. (1978) The Role of Play in Development. *Mind in Society*, pp. 92-104.

Gayler, K. and Evans, I. (2001) Pretend play and the development of emotion regulation in preschool children. *Early Child Development and Care*, Volume 166, pp. 93-108.

Hoffmann, J. and Russ, S. (2012) Pretend play, creativity, and emotion regulation in children. *Psychology of Aesthetics, Creativity, and the Arts*, 6 (2), p.175.

[52] Sutton-Smith, B. (2003) Play as a parody of emotional vulnerability. In: Roopnarine, J. L. ed. *Play and Educational Theory and Practice*, Play and Culture Studies Vol 5. Westport, Connecticut: Praeger.

Brown, S. (2009) *Play: How it shapes the brain, opens the imagination, and invigorates the soul*. New York: Penguin.

[53] Brown, S. (2009) *Play: How it shapes the brain, opens the imagination, and invigorates the soul*. New York: Penguin.

[54] Hoffmann, J. and Russ, S. (2012) Pretend play, creativity, and emotion regulation in children. *Psychology of Aesthetics, Creativity, and the Arts*, 6 (2), p.175.

[55] Brown, F. (2003) Compound flexibility: the role of playwork in child development. In: Brown, F. ed. *Playwork: Theory and Practice*. Buckingham, Maidenhead: Open University Press, McGraw-Hill Education.

[56] Burdette, H. and Whitaker, R. (2005) Resurrecting free play in young children: looking beyond fitness and fatness to attention, affiliation, and affect. *Archives of pediatrics & adolescent medicine*, 159 (1) pp. 46-50.

[57] Pellis, S. and Pellis, V. (2013) *The playful brain: venturing to the limits of neuroscience*. Oxford, UK: Oneworld Publications.

[58] Gordon, G. and Esbjorn-Hargens, S. (2007) Are we having fun yet? An exploration of the transformative power of play. *Journal of Humanistic Psychology*, Volume 47, pp.198-122.

Pellis, S. and Pellis, V. (2013) *The playful brain: venturing to the limits of neuroscience*. Oxford, UK: Oneworld Publications.

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Registered charity, no. 1068926 September 2020