



A FROEBELIAN APPROACH

Froebel's gifts and block play today

by Jane Whinnett MBE



This pamphlet has been produced by the Froebel Trust as part of a series focussing on various themes closely associated with Froebelian practice today. The pamphlets are an accessible e-resource for those supporting children 0-8.

Introduction

When Friedrich Froebel (1782-1852) gave his cousin a set of wooden blocks for her two young sons as a present and asked her to observe how they played with them, he gave us two gifts in one – a practical resource designed for children's learning and free play and an invitation to observe and reflect on practice. Both gifts are still relevant today. The blocks became part of the Gifts and Occupations Froebel created for the children in his kindergarten in Bad Blankenburg in the 1840s.

Froebel and wooden blocks



Fig.1: Using Froebel's Gifts

The Gifts are three dimensional, whereas the Occupations explore two dimensional shapes, lines and points. The Gifts can be returned to their original forms after use, whereas many of the Occupations cannot, for example paper cutting, pricking or sewing.

The focus of this pamphlet is on Froebel's building Gifts (Gifts Three to Six) and blocks today. The Gifts were sequential, moving from simple to complex, encouraging the learner to explore connection and opposition. The brilliance of the design was such that learning became child's play. As well as providing opportunities for creative play, aspects of mathematics, physical geography, science, engineering and architecture could all be investigated with the contents of the small boxes.

'[I]t must be something solid which can easily be pulled apart and just as easily put together again; it must be both simple and multiform. So from the material to hand we devise the divided cube, our third gift to the child'. (Froebel in Lilley 1967: 109)





Fig. 2: Gift 1

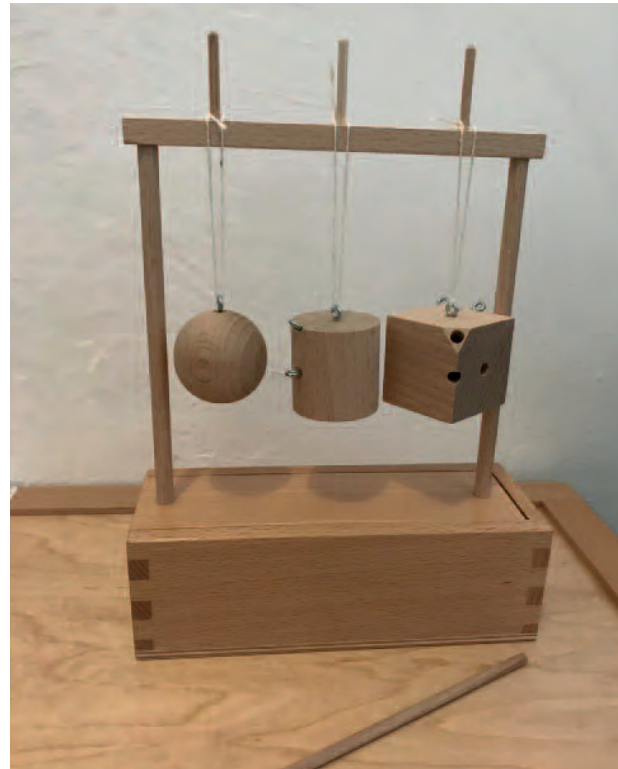


Fig. 3: Gift 2

Froebel's three Forms

Froebel's Gifts were used differently to blocks today. The wooden blocks, in a series of wooden boxes, followed the introduction of the felt balls in Gift One. For Froebel, the sphere symbolised his theory of unity (Tovey 2017). By way of comparison, the wooden blocks in Gifts Two to Six were hard, naturally coloured and featured different three-dimensional shapes. The three solid shapes in Gift Two, a sphere, cube and cylinder; had attributes in common and features in direct contrast with each other; for example the sphere rolls and the cube remains still.

The second Gift introduced children to Froebel's concept of opposition and reconciliation. The sphere and cube seem to be opposites, but the cylinder combines elements of both. Froebel recognized the child's curiosity in exploring the familiar and unfamiliar. These shapes could also be suspended, like a mobile over a cot, and spun to transform them in different ways like a spinning top.

Gifts Three to Six consisted of a variety of wooden prisms – based on square, triangular or rectangular bases. Each Gift was created from a cube sectioned at different angles or directions. Froebel recognized the child's impulse for self-activity and taking things apart and re-forming them, so initially explained his thinking in how to use the Gifts in explicit ways.





Fig.4: Playing with Gift 3



Fig.5: Froebel's Gifts 3-6

Later, finding these instructions were being used too prescriptively (Liebschner 1992), he advocated free play with the blocks but explained how the blocks should be opened and put away in the spirit of 'freedom with guidance'. Children were encouraged to explore and represent objects from daily life as well as more abstract concepts of beauty and knowledge in the forms they created. Froebel called these Forms of Life, Forms of Beauty and Forms of Knowledge.

Fig.6: Discovering 4 triangular prisms make a cube – a Form of knowledge



Block play today



Fig. 7: Unity and connectedness - link always link – here a rope connects different children's structures

Children play with all sorts of construction toys today. What is different about wooden blocks is that they are free-standing, unlike Lego for example. These blocks must balance. Froebel's original blocks were quite small whereas the blocks that most settings use now are based on the set of unit blocks developed by Caroline Pratt in 1913 in USA (Provenzo 1983). They are directly related to the shape of Froebel's blocks in Gift 4, rectangular prisms, in a ratio of 1:2:4.

There are many commercial sets of blocks on the market, so how do you choose which set? Investment in good quality blocks pays off. The blocks in my settings have been there for over 30 years. They are made from sustainable wood and need minimal maintenance. There are four different sets of different scale that integrate with each other and can be used separately. This allows children to build on a large scale, a whole-body experience, or on a small scale, with careful finger movements.



Block play and learning

They can play cooperatively or on their own. Sometimes when children begin on their own they join up their play with others in the area. Froebel encouraged children to build on their own and instructed teachers to link their buildings into a story so that everyone was included.



Fig. 8: Balancing small blocks needs concentration and fine motor movements

When observing children playing with blocks it is easy to connect what you see to the relevant curriculum framework. As an open-ended resource, block play lends itself to any curriculum based on holistic child development. Block play supports all areas of children's development (Cuffaro 1995). In playing with blocks children demonstrate what they know.

- **They explore the rudiments of arithmetic, algebra and geometry** - from simple shape recognition to the concepts of point, line, plane, distance and angle, just as in the sequence of Froebel's Gifts and Occupations.
- **Children can create structures in play with the blocks** - reflections, rotations and translations - that supports later more abstract understanding of geometry.
- **Blocks encourage symmetrical building** - giving children the opportunity to explore symmetry in far greater depth than the two-dimensional folded paper and paint exercise that is a common introduction.
- **Blocks provide opportunities to learn about size, shape and measurement** - by beginning to use a standard unit, to equivalence, quantity, sorting, matching and problem-solving.



Fig. 9: Child comparing block sizes

'Play is the highest level of child development. It is the spontaneous expression of thought and feeling – an expression which [their] inner life requires'.

(Froebel in Lilley 1967: 83)



Fig.10: Symmetrical building



Holistic learning



Fig.11: Children using blocks as Playstation controllers

When children are engaged in block play they illustrate a wide range of curricular experiences as well as the more obvious Mathematics and Technologies. They discuss, hypothesise, share, develop narratives, express ideas. They represent what they see in the world around them in the local environment and further afield. Blocks are gender-neutral and cross-cultural. Children do not have to share the same language to play together with blocks.



Fig.12: Jurassic World

They represent experiences they have had and can use the blocks to rehearse past or future events. Children can enter the worlds of fantasy or phantasy for example the children playing with blocks as playstation controls are engaging in fantasy as that is something that it is possible for them to do now or in the future, whereas the Jurassic world the children have created is pure phantasy.





Fig. 13: With blocks, children use their own first hand experiences and technical skill to express their inner thoughts and ideas



Fig. 14: Encountering other children's ideas can lead to shared negotiated meanings



Exploring blocks

Playing with blocks is a sensory experience. The grain of the wood creates patterns that are visually stimulating. These lines permeate the wood, unlike printed designs, so it is possible to explore in three dimensions around the corners of the blocks. The blocks feel smooth to the touch and are relatively heavy in comparison with other materials that children often play with. They make a satisfying sound when they knock together and can be loud when they collapse! They create their own musical dynamic.

When children first encounter blocks, they need space and time to explore with all of their senses. For young children grasping the block and passing it from hand to hand, hand to mouth or dropping it may be the first exploration. Knocking down, pulling or tipping out blocks sees the child beginning to act on the world around them 'through his own doing, feeling and thinking,' (Froebel in Lilley 1967:119). For children who can walk, transporting blocks from place to place, placing them in containers and knocking them down is the beginning of schematic behaviours and developing concepts of quantity, volume and gravity.



Fig.15: Early block exploration



Fig.16: Lying on the floor

When children are building with blocks they may also use other materials, sometimes called 'loose parts' (Nicolson 1971). These could be pine cones, shells, pieces of fabric. Exploring how blocks can be combined with other materials can intrigue adults as well as children. When considering the value of loose parts, Simon Nicolson theorised that the degree of inventiveness is directly proportional to the number of variables – or 'loose parts' – in the environment (Nicolson 1971). The open-ended nature of blocks means that they can be combined in an almost infinite number of combinations. This is a unique selling point of blocks in comparison with other construction materials that rely on fixings to attach to each other, for example Stickle Bricks or Mobilo, or a force such as magnetism, like Magnetico.



Open-ended resources

These examples show how loose parts such as small stones, wooden discs or cotton reels can be used to embellish models and extend children's symbolic thinking. The first is a model of London Bridge that a child made after a visit. She used available loose parts to represent the dynamic of the river and small wooden people to show pedestrians waiting to cross. The second illustrates the process of negotiating shared meanings. The last is a shop that three children created, where the loose parts are used as items for sale.



Fig.17: London Bridge



Fig.18: Negotiating shared meanings



Fig.19: A shop with everything it sells



Stages in block play

Harriet Johnson (1933) identified a series of developmental stages that builders progress through. The characteristics she described at the different stages can be useful when analysing observations of children and their constructions. The stages described the developing complexity of the structures made and with increasing attention to symbolic representation.



Fig.20: Stacking

Johnson observed that at first, children tended to work in one dimension creating stacks or rows with the identical surface of the blocks matched on top of one another or next to each other. Sets of blocks of any scale could be used for this. With large hollow blocks, children can use their whole bodies to explore – height and length.

Bridging was the next stage she described, where a block is raised and supported at each end by other blocks. This discovery allows builders to work in two dimensions at right angles to each other. Repeating these combinations supports children in developing a sense of pattern or rhythm.

The third dimension to be added is in the creation of enclosures. Structures now have breadth, depth and height. Johnson described the next stage as patterns and symmetry.



Fig.21: Bridging

Following these stages, children begin to use blocks symbolically to represent features of their environment, and to name their constructions after building. Just as mark-making can develop into writing, conveying meaning from accidental marks, children begin to ascribe meaning to their buildings and name their representations. Johnson described this in terms of early representation.

Naming the structure before beginning to build is one of the characteristics of later representation. In the Froebel Block Play Project, Gura (1992) found that children continue to develop their play in more and more complex ways - using understanding of buttressing, key stones and fulcrum in stunt building, by balancing a block in a way that looks impossible!





Figs. 22 and 23: Vertical and horizontal enclosures



Fig.23



Blocks as a symbolic language



Fig. 24: Bunk beds

Just as numbers are combined in meaningful ways in mathematics and words in language, blocks also have their own symbolic language. Each block can stand for an object in the world and be combined in ways that can be read and understood by others.

(Fig. 24) Two children regularly play in the block area together. Each day they start by creating enclosures as their houses with the unit blocks. They work quickly and in silence. One day, one child announces, 'I've got bunk beds!' He constructs the beds and spends some time problem solving how to make steps up to the top bunk. Another child arrives, watches what he is doing and asks, 'can I sleep in the top bunk?'

The laws of gravity prescribe the ways blocks can be combined, but the builder can generate an infinite number of combinations. Johnson highlighted 'the importance of offering children material by means of which they may review, rehearse and play out their past experiences' (1972: 189). A study by Otsuka and Jay (2017) proposed that playing with blocks developed 'functional dependency' (Athey 1990) which helped children to make the transition from concrete material to abstract thought.



Observing and recording



Fig.25: Observing children at play

‘What are you able to
build with your blocks?
Castles and palaces, temples
and docks.’
(Stevenson 1913)

One of the useful aspects of the stages in block play is that they can help practitioners to describe what they see children doing. Eberley and Golbeck (2001) found that while they were good at noticing the social aspects of play with blocks teachers – and practitioners – were less good at evaluating the complexity of the children’s block structures. As well as knowing the names of different blocks, having a shared framework to describe stages helps staff to describe the complexity of children’s structures. Sharing these observations with children themselves and with their parents are powerful ways to build relationships and encouraging working together.

Using different forms of observation can divulge useful kinds of information about the provision, the children and adults in the area. Time or frequency observations record who visits, how often and for how long. These can illuminate children’s choices and interests, identify dominant or excluded groups or focus on staff interaction. Using this information informs planning to support and extend learning, to increase accessibility and to change and develop what practitioners do.

Narrative observations can give more information about individual children and how they interact with others. Dated records show how children’s building develops over time. Keeping records is not solely an adult activity. Having drawing and writing materials nearby encourages children to represent their three-dimensional buildings in two dimensions. Snow at al (2018) describe the benefits of having writing utensils and a variety of paper and card in the block area for children’s language and literacy development. This particularly benefits children who are learning English as an additional language if the children begin to talk to each other. An adult in close proximity, who also sketches the construction, models the process.

Digital technology supports both children and practitioners to record their buildings, quickly and easily. Digital record-keeping, through photographs and videos or on-line platforms, means that parents can see what children have been learning, can discuss this with their child at home, comment or add information themselves. Tina Bruce (1992) highlights the potential of record-keeping as a shared point of entry for adults and children in gaining insight to our own thought processes.



Setting up a block area

Blocks need uninterrupted space and a flat surface to build on. Space allows children to access the blocks they need without knocking down other buildings in passing. It affords opportunities for building alone or with friends. A carpeted area is effective in reducing noise but can create an uneven surface to build on. The storage of the blocks is important. Shelves need to be robust to take the weight of the blocks and so that the blocks can be sorted and stored by shape. Presenting the blocks in this way demonstrates visually the mathematical relationships between them e.g. size, volume and shape. In choosing their blocks, they are making informed decisions based on the choices they can see.

When children finished playing with the Gifts, Froebel encouraged them to rebuild the cube and return it to the box. Froebel saw this as preserving unity. In the same tradition, children should also replace the blocks on the shelf when they are finished. The experience is complete. Initially the practitioner can model replacing the blocks in the correct place. Templates on the shelf, that can be made by photocopying the blocks or drawing round them, support this. It is useful to have blocks of different scales in the same area if they relate mathematically to each other. This will promote understanding of volume and scale.

If you want to promote complex, high quality block play then having only blocks in the area encourages this. If other construction kits and props are in the block area, for example high visibility vests and hats,

different play with a focus on roles will develop. Having loose parts available nearby can enhance buildings with elaborations (Gura 1992) but they may also deflect attention from building.



Fig.26: Block storage



The role of the adult

The practitioner role is important in block play - organising the area, resourcing it and spending time there. 'Rich block play does not just occur. It develops when the adult acts as a powerful catalyst working hard to enable it' (Bruce in Gura 1992:26). What the adult does there will reflect their pedagogical beliefs. Practitioners who 'observe, support and extend' (Bruce 2020: 104) will tune in to the child's intention and learning sensitively. Knowing when to comment, suggest or question can be a tricky judgement but keeping the child's agenda as the focus rather than the adult's is more likely to be successful. Tina Bruce describes this as being an anchor for the children (2011).

The most successful interactions are those that comment on the structures and extend children's thinking rather than asking closed questions that the practitioner already knows the answer to. Sometimes actions speak louder than words. Offering a choice of blocks, building a similar construction nearby or using a gesture supports the play to develop. Helen Tovey identifies the adult's role in sensitive interaction in block play as 'being a participative observer; listening; protecting children's block play; being a play partner; putting actions into words, questioning, supporting and extending' (2017: 98-99).

As practitioners, we are lifelong learners and developing reflective practice through self-evaluation or sharing observations within the team to hypothesise about children's learning deepens our understanding. When practitioners come together across settings to share learning a whole research project can emerge, such as the Froebel Block Play Research project (Gura 1992). Practitioner research is one of the most effective forms of career long professional learning.

'Rich block play does not just occur. It develops when the adult acts as a powerful catalyst working hard to enable it.'

(Bruce in Gura 1992:26)



Fig.27: Offering a choice of blocks



Supporting and extending children's interests

As children become more experienced builders, they tend to develop their own 'modules' or combinations of blocks that they use regularly (Gura 1992: 80). This formula seems to get them to where they want to be more quickly so that they can then try out new ideas. Sometimes it is possible to see patterns of repeated behaviour, or schema, in the block play.

'The more obvious schemas used in block play are vertical and horizontal, lateral trajectories, enclosure, connection, on top, inside/outside, transporting, up/down, dynamic trajectories, dab, clashing trajectories.'
(Bruce 2015: 82)



Fig. 28: Great Wall of China

Children can take their inspiration from a wide variety of sources. A child who had seen a National Geographic programme on the Great Wall of China announced that was what he would build and did so, only afterwards requesting a picture from the internet to check some details.

One aspect of block building that can cause anxiety for practitioners is when children want to build high. Staff need to reach a consensus, be consistent in their response and discuss safety with children. Balancing the thrill and benefit of reaching high and having the skill, against the hazard of a large block falling on someone, takes experience and a good knowledge of the children in the group. Having a step ladder nearby, enables children to achieve the heights they are aspiring to.



Fig. 29: Building at height

A display of photographs of previous structures can inspire children, as can books and other reference materials.





Fig.30: Learning to manage risk when building at height



Blocks and STEM or STEAM



Fig.31: Children with a ramp constructed with unit blocks

The foundations of Science, Technologies, Engineering and Mathematics (STEM) can all be developed in block play. The recent addition of Art, particularly in USA, creating the acronym STEAM, connects well to Froebel's Forms of Life, Knowledge and Beauty by recognising the inherent aesthetic qualities of block constructions. As well as skills in problem-solving, cooperation, designing and making, children apply what they know from the real world in designing constructions.

(Fig.31) Two friends spent the entire morning persevering to form a ramp for a car to run down smoothly. They used unit blocks, layering the units and finding wedges to create a slope with a regular gradient.

Expert 'blockies' can solve problems by using their own tried and tested techniques like creating buttresses (Gura 1992). A sound understanding of Mathematics is required to select the correct shape and number of blocks, as well as knowing how blocks can combine to work together.

Long before the child can press a button, flick a switch or swipe a screen, they can develop computational thinking in the simple cause and effect action of knocking down a tower of blocks – a consequential action in the real world.



Blocks in cultural spaces

Recently the Scottish National Gallery ran 'Wee Builders' sessions for parents and children visiting in a small group from an early learning and childcare setting. The aim was to promote the Gallery as a place for people of all ages and to welcome more children and families.



Fig.32: Representation of the adjacent Galleries linked by a tunnel

The children explored the exterior of the neoclassical building with its columns and triangular pediment. Indoors they saw a painting depicting the Gallery's construction alongside many other buildings from around the world. Children and parents made their own buildings using a basket of blocks.

The Gallery is built above the railway. Children could feel the vibrations of the trains passing underneath as they played. One child represented his experience using blocks and rectangles to show how the two adjacent Galleries are interconnected by a tunnel, over the tracks.

There is an increasing interest from galleries and museums in young children's play. The Wellcome Collection's Play Well exhibition is a recent example of this, as is the recent conference at the Victoria and Albert Museum held in November 2019 about engaging children in the design of the refurbishment of the Museum of Childhood in London.

Having opportunities for children to engage in public places can be compared to children spending time in nature. First-hand experiences are essential if we want future generations to value and protect features of both our natural and cultural landscape.



In summary...



Fig.33: Mother and child co-constructing

- Froebel's Gifts Three to Six are an ancestor of our modern blocks
- Block play supports children's holistic development and learning across the curriculum
- In play with blocks children can demonstrate what they know, expressing their ideas with creativity and imagination
- The adult role in block play enables block play by observing, supporting and extending
- The way blocks are stored supports children's access, learning and choice
- Sharing written observations of children playing with blocks supports planning, recording children's progress and practitioner reflection
- Children learn to manage risk in block play
- Blocks in cultural spaces are a way of making children visible in public places and gives them a voice in the way these spaces develop



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Suppliers of blocks and Froebel's Gifts

The Froebel Gifts are available from the Froebel Network at Annan School
www.froebelnetwork.org.uk

Community Playthings have historical links to Froebel. They supply blocks of different sizes and have interesting information on their website
www.communityplaythings.co.uk

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www.froebeltrust.org.uk

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Stella Brown

Iain Stewart

Jane Whinnett

The author

Jane Whinnett MBE is head teacher of two local authority nursery schools in Edinburgh. She believes that Career Long Professional Learning with a Froebelian approach to high quality experiences changes children's lives and she has supported initial training for Modern Apprentices as well as Masters students. She is a founder member of the Edinburgh Froebel Network, tutors on the Froebel in Childhood Practice and the MSc Education – Early Childhood Practice and Froebel, at the University of Edinburgh. Jane is a Trustee of the Froebel Trust and chairs the Education Subcommittee.