

SCHEMAS

Seeing child voice through patterns in play

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A schema is best described as a **set of instructions**. As adults we use them all the time, but like everything else we have learned, we do things automatically and without thinking. When we drive a car or make a cup of coffee, we use a mental schema to do it; **a memory model we've created through practice** to find the most efficient way of completing a task.

How do babies, toddlers and young children employ schemas?

Schematic patterns are visible in play when babies, toddlers and young children are involved in **repeated actions or certain behaviours as they explore the world around them**. These specific actions or behaviours are called 'Schemas'. The repetitive actions of schematic play allow children to construct meaning in what they are doing and how to work things out.

There are **9 main schema types** that children can display. Schemas may be represented physically, verbally or in drawings. Some children may work their way through a whole series of schemas, others will consistently display a dominant schema, while others may never display schematic play or behaviours.

Schemas are a natural part of children's play and development and help explain why some children show such persistence and determination to do things in a certain way.



'An educator who understands schematic play patterns holds a powerful insight into child development. Why? Because they can 'hear' the voice of a child, especially those too young to communicate their experiences in elaborate ways. Their timely response leads to learning'.

Educator awareness

Educator awareness of the main schematic patterns in play is essential for a number of reasons. Firstly, where children are non-verbal or pre-verbal, this is a meaningful way to convey **'voice'**. For example, a toddler who is observed lining objects up, or sorting objects into sets is demonstrating a 'Positioning Schema'. The toddler cannot articulate this interest to you verbally, however it is displayed through their play behaviour.

The presence of a schema in children's play should be considered as an **emerging interest**. This is equally relevant to an older child verbalising an interest in for example, animals or construction.

A basic knowledge and understanding of schemas can go a long way in supporting educators to understand young children's interests and **plan for them as part of an emergent curriculum**. When educators recognise schematic play patterns, they can build on emerging interests by supporting and extending the play and exposing children to descriptive words and new language. This educator and child relationship enables a powerful co-facilitation of learning.



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Brain building through schemas

The brain's ability to capture, store and retrieve memories is **what makes learning possible**. Babies and toddlers repeat similar actions again and again, thereby building categories into their brain structures. When they drop objects from a table or sing a line from a song over and over again, they are working on a thread of thought, **seeking to find a pattern**.

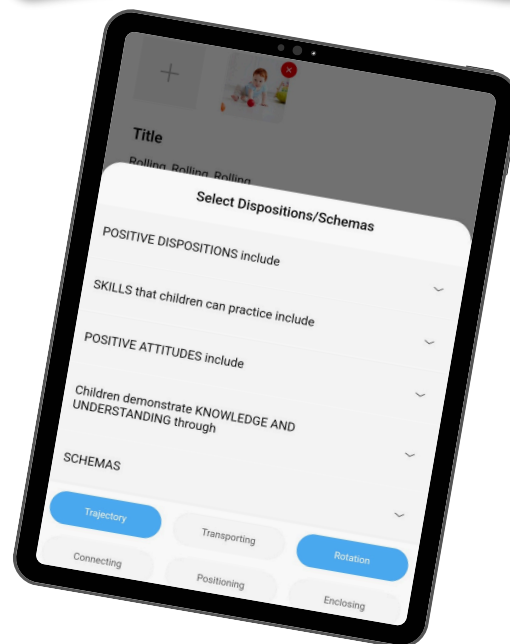
Children need opportunities to practice repeatedly until such times as the pattern is stored in their subconscious mind, then the schema becomes an **'unconscious memory'** (something they will do automatically without thinking). For example, actions of up and down, going from side to side, and rotating will support children when they begin to make marks, draw and eventually write.

The repetitive actions of schematic play allow children to construct meaning in what they are doing, one action at a time. Babies and young children learn best through opportunities to engage in active learning through hands on experiences. These opportunities allow babies and children to problem solve, question, predict, imagine, speculate and develop independent choices as they make decisions **voiced through their play**.

Children's schematic thinking progresses and becomes more complex across time with adult support. For example, at an initial level this involves motor/physical actions followed by representation of schematic thoughts via mark making, drawing and creative art. The next stage involves understanding co-learning relationships and words and language associated with different schema.



Online CPD programme
'Schematic Patterns in Play'
available on www.earlyedcpd.ie



The **MOSAIC App** contains a multi-modal documentation system for early childhood settings. All learning stories enable the educator to select corresponding schemas to match the story content. See www.mosaicearlyed.com for more.

9 COMMON SCHEMAS.. from the child's perspective

TRAJECTORY
I throw/drop things, watch things move in different directions, make things fly, step up and down and watch things roll.

ENCLOSING
I build fences or walls around objects or around myself. I also like to draw borders around my art creations or even arrange a border around my food.

ROTATION
I twist, turn and spin my body. I like to play with things that rotate or spin. I ride a bicycle or push a toy in a circle.

ENVELOPING
I wrap myself in blankets or curtains. I wrap objects in paper or parcels. I like hidey spaces and dens.

POSITIONING
I arrange objects in lines or circles. I line up objects - sometimes categorising by colour, size, shape or other characteristics.

TRANSPORTING
I move objects from one place to another using my hands, a bag or a truck.

ORIENTATION
I like to look at the world from different angles - through my legs or upside down. I like binoculars/mirrors.

CONNECTING
I join things together like bricks and junk art and pull them apart again.

TRANSFORMING
I am interested in things changing or changing appearance - including my own.

SCHEMA WATCH

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1. TRAJECTORY

This is perhaps the most common schema. Children are interested in **how they themselves and other things move**.

Patterns of movement emerge in which children move their arms, legs and bodies in horizontal and vertical lines. Babies can be observed reaching out for objects, kicking their legs, opening and closing their hands, waving arms up and down or side to side, throwing, pulling, pushing, pointing, rocking, climbing or stepping up and down.

Some activities to support a trajectory schema include:

- Make a simple skittles game
- Roll objects up and down a small slide, tubing
- Make and fly paper planes
- Blow feathers, chiffon scarves or tissue paper
- Make patterns by rolling objects in a tray of paint
- Make flags and kites to fly
- Blow bubbles
- Clear water funnels and plastic piping.



3. CONNECTING

Children exploring a connecting schema may show an interest in **joining things together** e.g. connecting train track pieces or Lego. They may enjoy sticking things together, like paper, card and junk resources. The 'connecting' schema can also lead to disconnecting, e.g. taking or pulling things apart.

Some activities to support a connecting schema include:

- Threading with ribbon, beads or pasta shapes to make necklaces
- Junk modelling with tape, string, glue, paperclips, ribbon, paper chain etc
- Use pipes, funnels, straws etc in sand and water to make connections
- Use natural materials such as twigs, willow, grasses to weave patterns
- Use a hole punch to thread small pieces of paper together to make mobiles
- Build a train track or road
- Construction toys that connect in different ways e.g. bricks, blocks, magnets, art straws etc
- Outside make chalk trails to follow or inside use masking tape to join areas together
- Make connecting spider webs/crawl nets using easy to tear masking tape.

2. TRANSPORTING

When children are exploring a transporting schema, you may observe children **repeatedly moving things from one place to another**, either with their hands, or by using something to contain the object, e.g. a trolley, bag, or doll's buggy.

Activities to support a transporting schema include:

- Diggers, tractors, wheelbarrows, spades and trolleys outdoors to transport natural loose parts
- Transport small animals, duplo bricks, in boats or foil trays in the water tray
- Build a mini construction site for moving materials
- Build pulleys for transporting things up and down or from side to side
- Provide a collection of purses, suitcases, rucksacks and bags for transporting things inside
- Build / draw a road for the cars / bikes to transport things along.





4. ENCLOSING

Enclosing is one of the most fascinating schemas to observe - mainly because of children's ability to find so many ways of enclosing. Children may be observed **joining lines or building structures with different materials to form an enclosure**. Children may build fences or walls around objects or fill in an enclosure they have drawn or built. They can also draw borders around their art creations, or may arrange the food around the edge of their plate or ride a bike around and around an enclosed space they have constructed.

Some activities to support a enclosing schema include:

- Drape a sheet over a frame to create a den
- Large cardboard boxes to hide in
- Set up tunnels, hollow cubes or pop up tents (put cushions and blankets inside)
- Parachute games that create domes
- Use shoe boxes to build homes animals/figures
- Create burrows and tunnels in wet sand, soil etc in the sensory trays
- In the role play provide cloaks, scarves, bandages for wrapping things
- Use construction materials to make fences, bridges, arcs and walls to enclose animals in
- In creative play use lolly sticks or twigs to frame work.



5. ROTATION

Children exploring a rotation schema are **interested in things that rotate** or that are circular, e.g. objects with wheels and spinning tops. This schema is observed when children turn or rotate themselves or objects. They will spin, twist, roll and turn objects and roll their bodies. Rotational schema are often energetic and children will be seen running and spinning in circles, riding around and around on bikes or twisting ribbons and fabric. Children may also draw or paint circles repeatedly.

Some activities to support a rotation schema include:

- Locks and keys, cogs, wheels
- Make CD mobiles to hang from ceiling/fence
- Make windmills, ribbon sticks
- Water wheels in the sensory trays / guttering
- Long spaghetti to make spiral patterns
- Rotary whisks in bubbly water
- Use paint rollers to make large scale pictures
- Fill treasure baskets with bowls and spoons, bracelets and bangles, cotton reels
- Roll CD's down guttering
- Paint, draw and chalk circles, spirals to finger trace or run around outside
- Play with tyres, large hoops and roll them
- Hand spinning objects from the trees outside
- Musical boxes
- Outdoor play roundabout.



6. POSITIONING

Children exploring a positioning schema do so by **positioning objects in lines, sequences and patterns**. They may enjoy working with small objects, which have a number of pieces. At times children may be obsessive in placing items in the exact place (e.g. on top, next to, in front of, around the edge, beside, behind) of an object or person. The children may be observed lining up objects in order of size, colour or shape. It can also be noted that some children may not wish for their food to be mixed together on the same plate.

Some activities to support a positioning schema include:

- Stacking and un-stacking objects
- Lining up toys or materials
- Balancing objects
- Peg boards to create patterns
- Hide and seek games.

7. ENVELOPING

An enveloping schema is where children cover objects or themselves with different materials. Children may be seen to **cover themselves, hide, camouflage and conceal themselves or objects**. This could include dressing in a number of hats, scarves, necklaces and bangles. Making dens under blankets or using furniture to construct a cave. Children may fill bags with all sorts of bits and pieces, paint or glue over their hands and then peel it off or paint over a picture with a single colour.

Some activities to support the enveloping schema include:

- Sunglasses, hats, capes, scarves, blankets
- Make sock or glove puppets
- Posting toys, Russian dolls, nesting toys
- Role play – wrapping parcels in the post office, blankets to wrap babies in etc
- Purses, boxes, tins, baskets, suitcases, glasses cases, wallets or bags to fill
- Small blankets to wrap things in
- Bandages, scarves, throws, large pieces of fabric to wrap themselves in
- Cover balloons, boxes or tubes in wallpaper paste and decorate
- Play pass the parcel
- Large tubes to post things into
- Make treasure baskets full of fleece, suede, fur fabric etc. for wrapping objects.

8. ORIENTATION

The orientation schema can be related to children who like to **see the world from different angles** – you may find these children spend a lot of time upside-down, looking through their legs, or turning toys and objects around to look at them from different angles.

Activities to support the orientation schema include:

- Make peep holes in paper, fabric or boxes
- Posting boxes
- Kaleidoscopes, binoculars, magnifying glasses and mirrors to look at objects and materials
- Outside support spinning, twisting, rolling or spinning
- Build pendulums
- Put mirrors on the floor, ceiling etc to explore different ways of looking at materials.



9. TRANSFORMING

A transformation schema is an interest in things **changing in substance or appearance**. Children who show this schema will have a fascination for objects and themselves changing in some way.

These children are interested in cause and effect and may ask 'What if?' A transformation schema will manifest itself in all sorts of ways. You may observe a fascination for mixing objects and substances, pouring water on lots of different things, or covering objects or themselves in substances or paint.

Some activities to support a transforming schema include:

- Puddle Art
- Ice and snow
- Gloop/slime/dough
- Mud kitchen
- Paint/Facepaint
- Adding substances to water, sand, mud
- Deconstruct objects
- Pestle and mortar- leaves, flowers, twigs
- Loose parts
- Cooking
- Mixing colours – paint, water, dough, chalk
- Dress up
- Making potions.



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