ROYAL FOUNDATION
Centre for
Early Childhood

Science briefing

# Back and forth interactions

**The Centre for Early Childhood's Explainer on back and forth interactions describes the importance of adults responding sensitively to children's early cues and communication.**

This briefing summarises the science behind the animation.

**Watch the Explainer Series on the Centre for Early Childhood website** centreforearlychildhood.org/the-explainer-series/

## Contingent responsiveness unpacked

1. When adults respond meaningfully to something a child is looking at, saying or doing, it is called contingent responsiveness. This is when the adult notices the baby or child's cue or signal and responds in a way that is sensitive and appropriate. The response is "contingent" because it depends on the child's interests, needs or actions.
2. Babies' and children's cues – and adults' responses - can take many forms including gaze, facial expressions, vocalisation, movement and touch[1]. A parent might notice that a baby is alert and gazing at the world around them, and shift how they are holding the baby so they can see that world

better as a result, talking to the child then about what they can see. A pre-school teacher might notice that a toddler is interested in a flower and pause to share the child's interest. Responses to a child's cues do not always involve doing something – sometimes they might be to stop doing something. For example, if a baby looks away, the adult might notice that the baby is over-stimulated and pause what they are doing.

**"We used to think that learning was just about adults teaching children... Now we know that babies and young children learn best when we follow their interest."**

3. Contingent responding has been called "serve and return", because scientists think it's like a tennis match: the child "serves" their initial cue, and then the adult "returns" with their response. Ideally, this should turn into a rally, with ongoing reciprocal interaction – the back and forth.
4. Contingent responsiveness is important across many parts of a child's daily life. For example, in rough and tumble play an adult might notice where a child feels over-excited, scared or overwhelmed, and moderate the game accordingly. Responsive feeding involves noticing and responding to a baby's hunger, and stopping when they are full, rather than enforcing a strict routine and expecting children to finish the milk or food they are given.
5. We used to think that learning was just about adults teaching children, providing them words and knowledge. Now we know that babies and young children learn best when we follow their interest. Babies' brains are also not always ready to learn and it is valuable to capture the moments when they are most receptive to learning, and we can only do this by watching the child and noticing their cues[2].

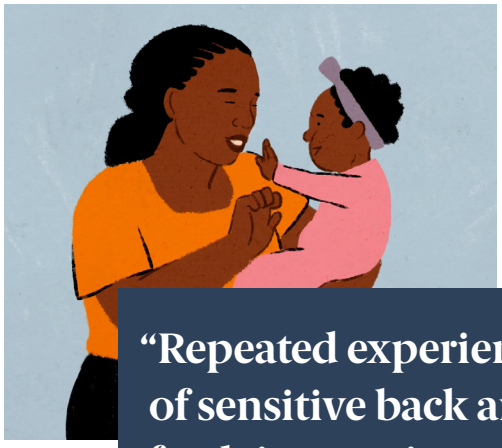
# Contingent responsiveness is harder when adults experience stress and adversity

To respond to a child sensitively depends on adults being attuned to the child. Attunement means noticing and responding to another person's feelings and experiences – it is the subject of another of the Centre for Early Childhood's Explainers.

Not all adults are able to do this consistently, especially if they have difficulty reflecting on mental states - an ability known as reflective function. Reflective function may be lower in adults who did not receive sensitive care themselves in childhood. High levels of stress and adversity can also make it harder for adults to notice and respond to a child's cues.

# Contingent responsiveness supports social and emotional development

From birth, babies actively seek out interactions and provide cues for adults to respond to. Newborn babies prefer to look at faces and turn their heads to familiar voices[3]. Babies' instinctive behaviours - such as crying when they are distressed - are biologically designed to capture adults' attention and elicit the help and comfort that they need. From a very early stage, babies show signs that they expect back and forth interactions and may be surprised or distressed if adults do not respond as they expect[4,5].



**"Repeated experience of sensitive back and forth interactions with adults underpins the development of a wide range of social, emotional and cognitive skills."**

When adults respond contingently to a baby or young child it is emotionally rewarding and reassuring for the child in the moment and supports many areas of their development. Repeated experience of sensitive back and forth interactions with adults underpins the development of a wide range of social, emotional and cognitive skills.

### Communicate with others

To acquire language, children need to hear words and associate them with real world experiences. When an adult follows a child's gaze, names an emotion or comments on what they are doing, they are helping children to associate a word with a thing, experience or feeling. This shared attention and conversation supports the child's developing vocabulary.

Early back and forth exchanges help children to learn the turn-taking patterns that are vital foundations for conversations. As children get older, the initial "serve and return" can turn into a conversation where the adult expands on the child's interests and ideas.

During early interactions where children's views and interests are taken seriously, children practice and gain confidence in expressing themselves and begin to see communication as a two-way process.

**"Every time we respond sensitively to a child's cues we are effectively saying, 'I see you, and you matter'."**

### Focusing our thoughts

Letting a child take the lead in interactions can support their learning and development. Research shows that children learn best when adults respond to and teach them about things they are interested in and follow their attention and interest[6,7].

Being attentive to a child's interests and activities enables adults to build learning opportunities into day-to-day life. The quality of these early interactions has been shown to predict a range of later skills, including language and numeracy[8,9].

### Nurturing our relationships

Contingent responsiveness builds the essential foundations of relationships - trust, empathy and mutual understanding. These repeated experiences shape children's internal "working models" of how relationships operate. When children repeatedly experience responsiveness they learn that others can be relied on to notice and meet their needs, and they begin to internalise these patterns in how they relate to others.

## Children also learn when things are not perfect

Children do not need perfect caregivers. Contingent responsiveness is a crucial part sensitive caregiving but it is okay for adults to sometimes miss (or misread) children's needs.

Science shows that children just need the adults around them to be "good enough". Adults only need to respond in sensitive and contingent ways around one third of the time to enable a baby to form a secure attachment[10].

There is evidence that too much responsiveness can actually be overstimulating and intrusive for babies, while too little means the baby goes without vital connection and support[11]. A healthy midrange of interaction is thought to be optimal.

Breakdowns or mismatches in interactions (known as ruptures) where adults miss a child's cues or respond incorrectly are common and can be repaired. These moments of reconnection (or "rupture and repair") can help a child to build trust and resilience[12,13].

## Contingent responsiveness helps a child to feel safe and loved

When adults show interest in children and respond to them sensitively and warmly, children learn that they and their feelings, views and perspectives are valued. Every time we respond sensitively to a child's cues we are effectively saying, "I see you, and you matter."

Respectful, responsive care also supports children's rights, as recognised in United Nations Convention on the Rights of the Child, to express their views, feelings and wishes in all matters affecting them, and to have their views considered and taken seriously[14].

If babies learn that their parent or caregiver can be relied upon to respond sensitively to their needs, they develop a sense of security and confidence. They come to see relationships as a secure base where they can feel confident, loved and safe[15]. This secure base allows children to explore their world. A toddler might return to a parent for a cuddle and reassurance before venturing out again. These small moments of connection build the foundation for lifelong security.

## Using contingent responsiveness in practice

If you are a practitioner working with families, you might support them to notice their child's cues and needs and respond in a sensitive way. This support can take many forms.

- Explaining about babies' cues and communication, helping parents to notice what babies are saying through their non-verbal cues
- "Voicing" a child's experiences in the room ("you are enjoying that cuddle, aren't you?")
- Modelling contingent responsiveness in your interactions with the child.

If you are meeting a family, you might, for example, notice the babies' cues and what this tells you about how they are feeling, comment on this, and adjust your behaviour accordingly. If a baby or toddler looks uncomfortable you might offer some soothing words and pause until the child seems calmer and more comfortable.

If you are working with children directly you might reflect on what helps you to notice their cues, and be led in your interactions.

To make the concept of contingent responsiveness simpler, you might use different terms such as back and forth or noticing and responding sensitively to babies and young children. The words serve and return are widely used now, although are likely to need explanation and may not resonate with all families.

# References

**1.** Beebe, B., & Steele, M. (2016). How does microanalysis of mother–infant communication inform maternal sensitivity and infant attachment?. In Maternal Sensitivity (pp. 141-160). Routledge.

**2.** Phillips, E. A., Goupil, L., Whitehorn, M., Bruce-Gardyne, E., Csolsim, F. A., Kaur, N., ... & Wass, S. V. (2025). Endogenous oscillatory rhythms and interactive contingencies jointly influence infant attention during early infant-caregiver interaction. eLife, 12, RP88775.

**3.** Cassia VM, Turati C, Simion F. Can a Nonspecific Bias Toward Top-Heavy Patterns Explain Newborns' Face Preference? Psychological Science. 2004.

**4.** Rochat P, Querido J, Striano T. Emerging sensitivity to the timing and structure of protoconversation in early infancy. Developmental Psychology 1999;35(4):950-957.

**5.** Tronick, E., Brazelton, T. B., & Als, H. (1978). The structure of face-to-face interaction and its developmental functions. Sign Language Studies, 18(1), 1-16.

**6.** Tomasello, M., & Farrar, M. J. (1986). Joint attention and early language. Child development, 1454-1463.

**7.** Saylor, M., & Ganea, P. (2018). Active learning from infancy to childhood. Springer.

**8.** Tamis-LeMonda CS, Rodriguez ET. Parents' Role in Fostering Young Children's Learning and Language Development. In: Tremblay RE, Boivin M, Peters RDeV, eds. Tremblay RE, topic ed. Encyclopedia on Early Childhood Development [online]. https://www.child-encyclopedia.com/parenting-skills/according-experts/parents-role-fostering-young-childrens-learning-and-language. Updated: December 2014. Accessed April 14, 2025.

**9.** Zhao, Y. V., & Gibson, J. L. (2023). Early home learning support and home mathematics environment as predictors of children's mathematical skills between age 4 and 6: A longitudinal analysis using video observations and survey data. Child Development, 94(6), e377-e392.

**10.** Hoghughi, M., & Speight, A. N. P. (1998). Good enough parenting for all children—a strategy for a healthier society. Archives of disease in childhood, 78(4), 293-296.

**11.** Beebe B, Steele M. How does microanalysis of mother-infant communication inform maternal sensitivity and infant attachment? Attach Hum Dev. 2013;15(5-6):583-602. doi: 10.1080/14616734.2013.841050. PMID: 24299136; PMCID: PMC3855265.

**12.** Beeghly, M., Perry, B. D., & Tronick, E. (2016). Self-regulatory processes in early development. The Oxford handbook of treatment processes and outcomes in psychology: A multidisciplinary, biopsychosocial approach, 42-54.

**13.** Winnicott, D.W. (1973). The Child, the Family, and the Outside World. Penguin.

**14.** United Nations, (1989), Convention on the rights of the child.

**15.** Bowlby, J. (1988). A secure base: Parent-child attachment and healthy human development. Basic Books.