Can newborn babies imitate?

Parents enjoy finding ways of communicating with their newborn babies. Here we provide two perspectives on the evidence: one from a student practitioner and another from an academic.

Alex Bollen, NCT student postnatal leader and research networker, examines the conflicting evidence on newborn tongue-poking.

Are babies born with the ability to copy the actions of others, or is this something they learn over time? This has been a contentious issue, with Reddy and Trevarthen arguing that ‘neonatal imitation has been one of the most controversial of all twentieth century findings in infant development.’ Recently, a mother questioned NCT’s teaching about newborn babies’ ability to imitate, suggesting our information was not up-to-date. This review looks more closely at the evidence.

In a landmark paper published in 1977, psychologists Meltzoff and Moore argued that babies have an innate ability to imitate. The paper reported two experiments with 12-27 day old infants that found that babies matched tongue-protruding and mouth-opening gestures made by adults. Meltzoff has developed his thinking over the years and has been hugely influential in inspiring other research. For instance Nagy et al found that newborn babies will match an experimenter’s index finger extension.

The understanding that very young babies can imitate adults has crossed from the academic literature into mainstream parenting books. The Social Baby shows photographs of a baby less than an hour old apparently copying the facial gestures of his/her father.

But other developmental psychologists have questioned the theory that humans have an innate ability to imitate. In a 1991 review of the research, Anisfeld found that a clear matching effect was found only in tongue protrusion experiments. For other gestures, such as mouth-opening, there were more negative than positive effects.

Jones has also questioned Meltzoff and Moore’s conclusions, hypothesising that babies may poke their tongues out when their interest is aroused by any visual display, and that any matching with the adult’s facial gesture is just coincidence.

To test this hypothesis, Jones conducted an experiment among four-week-old babies which found that those who looked longest at a small railway signal with blinking lights produced higher rates of tongue protrusions than babies who showed lower levels of interest. She found that playing the overture to The Barber of Seville also increased the rate of tongue protrusion, suggesting that both adult tongue protrusion and music create a similar reaction. Jones proposed that young babies’ tongue movements are an early form of mouthing behaviour; a sign that they are interested in something and want to explore further.

Commenting on the research, social scientist Maggie Redshaw says: ‘The jury is still out about the mechanisms affecting newborn babies’ responses. As one who has worked with human newborns in the delivery room and the hour immediately after birth, mouth opening, tongue protrusion and facial grimacing, as well as hand-opening and closing can be elicited. I also found that ape babies at less than a week could do the same. The arousal hypothesis is interesting and I expect further research will be done, looking at the full range of behaviours, not just tongue protrusion.’

Professor Lynn Murray, co-author of The Social Baby, argues that while debates between researchers can be confusing for practitioners and parents, some thoughts about terminology may be helpful in resolving what might otherwise appear a muddle.

First, it is clear that the nature of what is called ‘imitation’ changes greatly over development. When a two-year-old faithfully copies an older sibling’s, or a parent’s, every action – perhaps bouncing on a bed, or helpfully using a dustpan and brush – what is happening is entirely different from the reported behaviour of newborns poking their tongues out in response to an adult doing so, since the two-year-old’s actions clearly entail far more sophisticated intentions and cognitions.

For these reasons, some researchers prefer to use words like ‘matching’ for what newborns can do, and ‘emulation’ for actions that reflect learning what the uses of objects are (like the dustpan and brush example above), reserving the term ‘imitation’ for conscious, deliberate attempts to copy the behaviour of another. Once such inconsistencies in the use of the meaning of ‘imitation’ are ironed out, many of the apparent disagreements begin to fade away.

A second point worth making is that it is critical when working with babies, and particularly very tiny ones, that testing conditions be highly sensitive to the baby’s state. It is no use trying to test a newborn
perhaps more important though, is the need to take on board the issue of babies’ motivations. Just as each baby has their own individual temperament and behavioural propensities, as is emphasised throughout The Social Baby, so they may vary greatly in their keenness to engage in the kinds of imitation sessions described in the literature. This is also why testing conditions are so important. It would be awful for a parent to feel that ‘something is wrong’ with their baby if they did not happen to poke out their tongue in imitation when a parent tried to elicit it.

‘Early imitation in newborn babies is likely to occur for behaviours that are already common in the baby’s own repertoire.’

Knowing that newborns have the capacity to match others’ actions can be valuable in making us realise that babies can be more fully aware of other people and of their connection to them than we might otherwise realise. However, trying to get our own babies to perform to order may well disrupt what would otherwise be sensitive contact. Interestingly, very recent research showing matching or imitation of head movements and tongue protrusion in newborn rhesus macaque monkeys also shows striking individual differences in infant monkeys’ propensity to imitate.9

In conclusion, it would seem premature to throw out the accumulated evidence for neonatal imitation because of controversies, not new to developmental psychology, that are often more about differences in uses of language than actual data.

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References

Implications for professionals and NCT practitioners

- Communication between parents and their baby, from birth onwards, is important. Dr Cathy Hamer, Talk to Your Baby’s Policy and Communities Manager, says, ‘Whether a baby is aroused, excited or imitating, what matters is that there is communication between baby and parent/carer.’

- Parents may need to be reassured if their babies do not seem to mimic facial expressions. One mother who responded to the NCT courses’ online feedback audit told us: ‘I have met several mums who excitedly told me that their babies copied tongue-poking, but even more who had tried hard but were at best confused and at worst anxious when they had found that their babies did not stick their tongues out back at them.’

- Newborn babies are individuals and behave differently: their ability to imitate or ‘match’ is highly dependent on their state of arousal. As practitioners, we need to encourage parents to be sensitive to their baby as an individual and not to focus on what they ‘should’ or ‘shouldn’t’ be doing.