The development of children’s communication in the first two years: a research overview

By Lynne Murray, professor of developmental psychology at Reading University

This narrative research overview provides a summary of the development of normal social communication between parents and their baby during the first two years after birth, including a section on attachment relationships. This is based on literature searches and analysis undertaken for a new book on the psychology of babies.1 The article describes how different patterns of interaction between babies and their parents evolve in line with the baby’s wider development. This starts from the newborn baby’s basic attraction to other people, through to the two-year-old being genuinely cooperative, and able to understand that others might have different experiences from his own. These phases of typical communication are important for a child’s social, emotional and cognitive development. They lay the foundation for later emotional wellbeing, social co-operation, and academic learning.

There was insufficient space to discuss development in babies who were born prematurely, or who may have impairments. Nor was there space to discuss the literature on the effects of maternal depression. This last topic is discussed in detail in a book chapter written with Peter Cooper.2 I refer to the baby using the masculine pronoun, to differentiate from the mother.

Background

Unlike other mammals that are born with basic abilities enabling them to act independently, like standing or moving around, human infants are born largely helpless, and they remain highly dependent on other people for several years. This means that it is vital for them to be in an enduring relationship with someone who cares for them. This is essential for children’s physical survival, but also important for much more than that. In fact, social relationships are fundamental to young children’s emotional wellbeing, to their cognitive development, and to their being able to flourish across the life span. A child’s relationships are especially important during the first two years, when brain growth is particularly rapid, and when the foundations are laid for many fundamental skills. For this reason, infants are geared up to be social right from birth, and if parents understand infant communication in the first two years, before language gets fully underway, they are in a very good position to support their baby’s progress.

How does normal communication between parents and their baby develop?

The newborn period

Babies have an inborn attraction to other people. For example, even newborns will prefer to look at face-like patterns, rather than patterns with the same elements jumbled up.3 And they also prefer to look at faces that signal readiness for social contact — for example those that are facing forward towards the baby with eyes open, rather than in profile or with eyes closed.4 In the same way, newborn babies are born with a preference for the sound of a human voice, rather than a non-human sound, even if it is of the same pitch and intensity as a voice.5 They even prefer voices that show the special quality called ‘baby talk’ that people intuitively use when they speak to babies (this is high-pitched, simple speech, often with a ‘musical’ quality). More than this general attraction, though, babies also quickly pick up the particular features of the people who are involved in their care — their voice, their smell, and even their face — and already begin to show a preference for them within the first few days and weeks.6 It is as though the baby comes into the world not just generally social, but ready to form relationships with particular people. This makes good sense, because being in a close relationship, looked after by someone who becomes intimately involved with him and knows him well is the best way to ensure that the baby receives the care he needs.

Further, although clear social communication is not yet well developed, these early signs of social readiness, along with much of newborn babies’ other behaviour (e.g. calming when being held or rocked, signs of discomfort if stimulation is too intense), are meaningful. Babies are constantly processing and adjusting to what is happening around them. It can be rewarding for parents to understand more about these early signals and cues, and enabling them to respond supportively.7,8,11

On the parent’s side, a readiness to connect with the baby is also in place. In fact, whether parents or not, adults, and even children, show special responsiveness to babies. Recent brain research has shown, for example, that within just a fraction of a second of seeing a baby’s face, a very specific reaction is triggered that is linked to feelings of pleasure and reward, and that makes us want to interact with the baby.9,10 This is quite different from the response to seeing an adult’s face. And just as babies seem to be geared up to make special connection with their own carers, so parents too show particularly strong brain responses to the sight and sound of their own baby. Special hormones are involved in these reactions, and in particular, oxytocin.11 This hormone is produced when feeding a baby, but it is also involved in empathic feelings during other kinds of intimate contact, with levels rising in both mothers and fathers when, for example, touching or playing with their baby.

These very basic early responses all help to get babies and their carers connected with each other in an emotional way. The word ‘bonding’ is often used to refer to this process in parents, reflecting the idea that it sets them up to be emotionally committed to their child, and helps secure their care. The idea of ‘bonding’ first got off the ground more than 30 years ago and while it was helpful in encouraging hospitals largely to abandon the policy of separating parents from their baby, it also led to some difficulties.12,13 So, parents who, for whatever reason, could not spend much time with their baby in the first few days after birth, frequently worried that they might not be properly ‘bonded’, and that this would have long-term adverse effects. Subsequent debate suggested that the initial conclusions may have been overstated.14 In my judgment a more balanced view has prevailed, including the understanding that parent-baby relationships may sometimes take a little while to evolve, without there necessarily being any negative consequences if connections are not immediately made, especially if general circumstances are good.

Early communication - the period of ‘core relatedness’ from 2-4 months

In the very first few weeks, babies spend much of their time sleeping and feeding, and although a basic motivation and readiness to be in contact with others can be seen, babies’ responses are generally not obviously social at this time. Thus, if they make eye contact and engage with their carer, their mouth and facial movements are often rather formless, and eye contact is not often maintained for very long. By six weeks, however, babies’ sociability has generally shown a dramatic surge: they will more readily maintain eye contact, and if the person interacting with them is attentive and gives the baby time to be expressive, clear signs of
Although general responsiveness to baby and will show clear signs of pleasure. In this way babies will stay engaged for longer, this kind of feedback, for when parents behave exaggerated form. Babies seem to really like imitating many of the baby’s expressions, or considered an ‘intuitive parenting’ response. so quickly, and is so stereotyped, that it is smiling. This ‘greeting’ response happens for the baby obviously can’t talk at this age, this ‘pre-speech’ behaviour has many of the characteristics of actual speech. Indeed, parents often comment in response, ‘Oh, are you talking to me?’ or ‘What’s that you’re saying?’, as though the baby is becoming a genuine partner in a conversation. Just as parents of newborn babies show a kind of preparedness to respond to baby faces, so they also display a number of other semi-automatic social behaviours during these later, more active, social contacts. For instance, at two-to-four months, if the baby turns towards his parent and makes eye contact, it is very common for parents to immediately greet the baby in a clear and stereotyped way – raising their brows, opening their mouth wide, and smiling. This ‘greeting’ response happens so quickly, and is so stereotyped, that it is considered an ‘intuitive parenting’ response. Aside from this greeting response, parents often find themselves quite unconsciously imitating many of the baby’s expressions, or marking them out expressively in a slightly exaggerated form. Babies seem to really like this kind of feedback, for when parents behave in this way babies will stay engaged for longer, and will show clear signs of pleasure. Although general responsiveness to baby cues seems to be pretty well universal, exactly which baby behaviours parents pick up on, and exactly how they respond, even during these early interactions, can vary. Some of this variability can reflect different cultural values – for example, whether parents value a child’s individuality or, by contrast, their affiliation and interdependence. Japanese and some African societies, for instance, have been found to place great value on closeness and affiliation, and these parents typically use touch (patting, rocking, kissing), rather than facial signalling, to respond and communicate with their baby. Unfortunately, research has focused almost entirely on parent-infant relationships in North American and European populations, and knowledge about very different cultures is extremely limited, so this is an important area for new research.

The period of topic-based relatedness’ from four-to-nine months
After the first three-to-four months, babies’ abilities to engage with the wider world develop in a new direction. They begin to be able to see things in the distance as clearly as adults, and also begin to stretch out and grab hold of things that catch their attention. These new abilities change the nature of parent-infant social interactions. It is quite common, for instance, for the baby’s enjoyment of the earlier, purely face-to-face, contact to wane. Instead, the baby will commonly turn away from his carer and become absorbed in something nearby. This behaviour triggers parents to adopt new ways of engaging with their baby. Commonly, they will play body games, such as ‘Round and round the garden’, or ‘Row, row, row the boat’, or use a toy to entertain the baby. What these new kinds of play have in common is that there is now a ‘topic’ for parent and baby to share. Particular games often develop into routines that become familiar for the baby, so that they can actively join in and anticipate each step in the sequence. The baby’s engagement in this new kind of play is also helped by special parental behaviour that is called ‘ostensive marking’, or ‘motionese’. Just as with the previous ‘core relatedness’ period, parents are very expressive during these new games. They will use their facial expression, tone of voice and the timing of their actions to emphasise the key moments, or the climax of play, or highlight some feature of whatever the baby is looking at or handling. Although this behaviour by parents might seem trivial and unimportant, it actually seems to help the baby process what is happening and help him organise his experience. Studies of brain activity, for example, have shown that the baby’s responses are more active and more efficient when he looks at something if his social partner has just signalled their own interest in it, using these ‘ostensive markings’. This kind of behaviour also appears to help babies progress to the next stage of their social development, that is, the stage of ‘connected-up relatedness’. The period of ‘core relatedness’ from 9-18 months
The period from around nine-to-ten months sees an important shift in the way the baby engages with other people. The main feature of this development is the baby showing that he sees the connections between his own experience and other people’s. This includes his directing another person’s attention to something of interest through looks and points, being able to follow someone’s suggestions to do things, checking on another person’s reactions before responding in uncertain situations, and even behaviours to entertain others, like ‘showing off’ or ‘clowning around’. At this stage, babies begin to like being helpful, and join in whatever someone else is doing. They are naturally motivated to share. Encouraging this behaviour, by finding ways to include the baby in simple tasks, such as putting clothes in the washing machine, or wiping the table and praising him, might mean that getting jobs done takes the parent a little more time, but it is a key way for them to help the baby become genuinely co-operative and keen to share in what others are doing. Harnessing this impulse early on is an effective way to encourage sharing and cooperation and to prevent oppositional, aggressive behaviour becoming established.
Attachments

As well as becoming more socially aware and seeing connections between his own experience and other people’s, by nine months babies have typically become aware of their dependency on the people who care for them. By this time, for example, babies often show what is called ‘separation anxiety’, and also ‘stranger fear’. Separation anxiety may seem rather puzzling to parents, as a baby who has always been content to stay on their own while the parent pops out of the room to answer the door or fetch something will suddenly cry at their departure. Similarly, in ‘stranger fear’, it may seem odd that a baby who has previously been happy to greet unfamiliar people and even be held by them, may suddenly show wariness, or even fear. In fact, although it might look as though the baby is taking a backwards step in development at such times, these new behaviours actually reflect a more mature awareness on the baby’s part of his need for his parent. Helping the baby manage these difficult feelings by being supportive and understanding, including talking to him about what is happening and acknowledging his feelings, will allow him to feel secure, so that he can then behave independently with confidence.

The behaviours described above — stranger fear and separation anxiety — are both part of the wider development of the baby’s attachments. Almost all babies develop a sense of attachment to the particular people who care for them (these are usually their parents, but attachments can also develop to other carers, such as grandparents and professionals who are closely involved with the child). These are felt by the baby to be special relationships, and he will single these particular people out if he feels needy or distressed in preference to other people who may be present. Typically, therefore, the number of babies’ attachments is limited to just a few people. Exceptions are babies who have been brought up in extreme conditions with minimal personal care, as in the Romanian orphans through the 1990s, where specific attachments are not formed.29 Much research has been carried out into babies’ attachments, and several key conclusions have emerged. First, by around 12-18 months, babies’ attachments to their carers are generally becoming settled into a clear pattern, when a distinction can be made between attachments that are ‘secure’, and those that are ‘insecure’. Researchers often assess the pattern of a baby’s attachment in a standard situation (called the ‘strange situation procedure’) that mildly challenges a baby’s attachment needs — for example, when his carer briefly leaves him (just a minute or two) in an unfamiliar environment, and then returns.29 In a secure attachment relationship, the baby can trust his attachment figure, and feels that he can depend on them to understand and support him when he is needy and vulnerable. It is as though that person is a ‘safe haven’ for the baby in times of difficulty. Babies who are secure in their relationship with their parent or other carer can, therefore, feel free to show their distress during the time when their carer leaves the room in the standard assessment, since they have become confident that their distress will be responded to, and that they will receive a caring response. Once comforted when their parent returns, they tend to recover quickly, and can resume playing easily. The secure pattern does not mean, then, that the baby will be overly dependent. On the contrary, the baby who feels he can rely on and trust his attachment figure can feel easily satisfied that his needs are met, and can then be free to express his feelings, explore his environment and be independent.

While the majority of babies in research studies have been found to develop a secure attachment to their carers, this is not always so. Some babies may not have built up a sense that their carer provides a secure base for them, willing and able to support their needs. Researchers distinguish different patterns of attachment insecurity. The first is an insecure ‘avoidant’ pattern, where the baby avoids showing any distress in situations that secure babies would find upsetting (like the one described above of being briefly separated from their parent in an unfamiliar environment). It is as though the baby feels wary of showing his neediness, in case he is rejected, and tries to manage without help. Although these babies’ responses may not seem problematic, studies have shown that in fact they find such situations stressful — their heart rate increases and levels of the stress hormone, cortisol, also increase.30,31 The second insecure pattern is called ‘ambivalent’ or sometimes ‘resistant’. Unlike avoidant insecurely-attached babies, those with this kind of attachment do show their distress in situations that challenge attachment, but their distress is very extreme, and sometimes mixed with anger, and the baby usually finds it hard to be reassured and stop crying when their carer returns. In this case, it as though the baby feels anxious about his carer’s availability, and he therefore finds it hard to disengage from them and enjoy exploring and being independent. The final category of attachment insecurity is called ‘disorganised’. Babies in this group seem to feel confused in situations like a carer’s brief departure and return, and will show odd (eg flapping hands), and sometimes contradictory behaviour (like starting to approach their carer when they return, but then veering away). This pattern of response in the baby is more likely where the carer has sometimes been frightened, for example shouting or behaving aggressively. It is thought to arise because the parent’s behaviour places the baby in a quandary as to how to respond, since the person he depends upon is at the same time the person who can cause him to be fearful.

Long-term studies of children’s development have generally found that the pattern of attachment a baby establishes with his parent (in the research studies, this has usually been the mother since mothers have generally been the babies’ primary carers) is predictive of later behaviour. Children who are secure as babies tend to have more straightforward and satisfying relationships with others later on,
and are less likely to have behaviour problems of either the ‘externalising’ (eg aggressive, oppositional) or the ‘internalising’ kind (eg anxiety, extreme shyness).

By contrast, those who were insecure as babies have a raised risk of developing such difficulties. This is not to say that attachment insecurity inevitably leads to later difficulties. Indeed, the predictions from early attachment to later behaviour, while stronger than from many other aspects of infant development, are still quite modest. Nevertheless, fostering babies’ secure attachment is an important way of helping children to flourish. Barriers to parents being able to support the development of a baby’s secure attachment include the presence of marked stress in their lives, such as multiple deprivation during their own childhood, living in acute poverty, being in an abusive relationship, or experiencing difficulties such as depression. It is important to note, however, that early parent-child relationships difficulties can improve if circumstances change or if support is given, especially in the child’s early years. It is therefore always worth seeking support from health professionals, or other relevant support groups, if parents are struggling, as well as using resources that could help parents understand more about their baby’s attachment signals and cues.

It is therefore always worth seeking support from health professionals, or other relevant support groups, if parents are struggling, as well as using resources that could help parents understand more about their baby’s attachment signals and cues. It is also worth noting that babies’ attachments to different people can vary, with each depending on the quality of care that has been given. If, for whatever reason, one carer is finding it difficult to support the baby’s security, the baby may benefit from another carer being involved.

Social development in late infancy: social understanding and cooperation

From around 15-18 months, the kind of ‘connected-up’ relatedness that babies showed earlier, and that supports babies’ new awareness of their attachment relationships, develops into a more mature understanding of other people. This includes realising that other people might have thoughts and experiences that are different from their own.

Biscuits and broccoli

In one classic study, for example, the baby is presented with two different kinds of food, and is asked to give someone (usually an experimenter) one of them: one kind of food is something the baby himself is known to like (in the classic study, this was biscuits), but which the other person has demonstrated they dislike (saying ‘yuk’ when they try one), while the second food is one the baby is known to dislike (in the study, this was broccoli), but that the other person has demonstrated to the baby they like (saying ‘yum, yum’ when they try it). In earlier infancy, babies seem to make no distinction between their own experience and someone else’s, and they will offer the other person what they themselves enjoy eating. By 18 months, however, it is as though the baby can be more objective, and will now offer the food that is not to his own taste, but which

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This article is based on a book for parents, students and professionals. *The psychology of babies: how relationships support development from birth to two* by Lynne Murray, and published by Constable & Robinson, 2014. The book gives a detailed account of babies’ development in four key areas - social understanding, attachments, emotions and self-control, and cognitive development. It uses many frame-by-frame photographic sequences (including the examples shown here), taken from videos, to help understand the nature of babies’ experiences, and the role that relationships can play in supporting them.
the other person has shown they like. This ability to understand others’ points of view and be more objective can also be seen in other behaviours. These include babies being able to recognise themselves in a mirror, becoming able to trick other people into believing something that isn’t true, teasing others, or in their growing awareness of what it is to be ‘naughty’. Alongside these new signs of social understanding, babies also develop a better sense of what it is to be co-operative, and they will join in projects with enthusiasm, as though they have a fuller understanding of the wider purpose behind others’ behaviour.

Studies have shown that particular sorts of social interaction help the baby develop these new skills of social understanding: one is pretend play, where the baby is encouraged to imagine what the play characters are experiencing. Talking to babies about the reasons why people do what they do, or about the feelings they experience in different situations, is a particularly important way of helping babies develop their understanding of others. This kind of talk can happen during any ordinary activity with the baby or in pretend play, but it is particularly likely to happen during picture-book sharing, when time can be taken to focus on the experiences, thoughts and feelings of the book characters. Picture-book sharing is also a very good means of expanding a young child’s comprehension and vocabulary, since words are often clearly repeated, and links can be made to the child’s own experience. Indeed, researchers have referred to this activity as ‘a language acquisition device’, since parents tend to name things for the child in this context more than in any other. This is particularly effective when the adult follows the baby’s interests in the pictures, for example, letting him turn the

### Attachment and attachment parenting – what is the difference?

**What is attachment?** The term attachment is used in research to describe the relationship that develops between a baby and the key people he depends upon for care. The security of a baby’s main attachment relationship is associated with better social and emotional adjustment in later childhood.

**Who are the baby’s ‘attachment figures’?** Babies usually develop attachments to just a few people – normally their parents, but grandparents, older siblings, professionals or others who are closely involved in the baby’s care, can also be attachment figures.

**Different kinds of attachment.** The baby’s attachment to someone is described as either ‘secure’, as when he has a feeling of confidence in the relationship and trusts his attachment figure to respond to him when he feels vulnerable, or else ‘insecure’, where this feeling of trust and confidence is reduced. Security is also associated with the child’s feeling confident to explore his environment at times when his attachment needs are not prominent.

**How common is secure attachment?** In studies of populations that are not experiencing high levels of adversity, two thirds or more of babies are secure. However, the quality of attachments can change, for example, when parents who were having difficulties in responding to their child’s needs receive support for their parenting.

**Why are some babies secure?** Security doesn’t seem to be related to a child’s genetic make-up. Parenting quality is important, and particularly the parent’s ability to respond to the child when they are feeling vulnerable (e.g. distressed, ill, or frightened) by giving comfort. Showing an understanding of the child’s attachment needs through talking to him has also been found to encourage security, as well as the parent’s support for the child’s impulse to explore and be independent. Fostering security, as described in research studies, is not, therefore, the same as what has been termed ‘attachment parenting’.

**What is ‘attachment parenting’?** Sometimes positive principles from research are crafted into a prescriptive programme or movement. This can help to promote awareness of positive approaches towards birth, feeding or other aspects of parenting. The importance of secure attachment has been promoted in a number of ways by different groups and individuals. Attachment Parenting International is one example. Others have coined terms, including the continuum concept, intuitive parenting, and so on. However, the act of reifying an idea (turning it into practical advice) can have pitfalls and unintended consequences, such as being overly prescriptive or making claims that may not be fully grounded in reliable evidence, and can create parental anxiety and guilt unnecessarily. A criticism of the attachment focus – which is generally positive – might be that it encourages prolonged physical contact in many situations, whether or not the child expresses vulnerability.

Lynne Murray with Mary Newburn

### About Lynne Murray

Lynne Murray has been working as a developmental psychologist for over 30 years. Her main research interest is the development of children growing up in difficult circumstances (e.g. where a mother suffers from depression or anxiety, or where the family lives in conditions of severe socio-economic adversity). She has published widely in academic journals and is the author of *The social baby* and co-editor of *Attachment parenting: an alternative approach*. Her most recent book is *The psychology of babies: how relationships support development from birth to two*. She is research professor in developmental psychology at the University of Reading, but also conducts her research in Italy and Africa. She is professor extraordinary at Stellenbosch University, South Africa.

### Theory of Mind

‘Theory of mind’ is the ability to understand that someone else’s experience can be different from our own. (This is something that children on the autistic spectrum find difficult). Theory of mind skills are normally assessed in three- to four years olds, ie at a time when children can give verbal responses when asked about another person’s point of view. Understanding that the other’s point of view may be different from your own (see the ‘biscuit and broccoli’ experiment described in the article) develops in a preverbal form from around 18 months. This has been found to predict later performance in full, verbal ‘Theory of Mind’ assessments.
Conclusion
From birth, babies engage in social contacts, and their carers' responses help support babies' psychological development in many ways. This includes the ability to understand other people's experiences and co-operate positively with them, as well as the development of attachment security. In turn, these early milestones lay the foundations for further important developments in childhood and even adolescence. Much of what parents and other carers do when they engage with babies is done without thinking. Observational studies conducted over many decades, together with more recent brain research, show, however, that these responses are precisely adapted to babies' capacities and exactly what they need.

The NCT research overview series provides an evidence base to guide the practice of NCT and other transition-to-parenthood workers on topics of relevance during pregnancy, birth, parenthood and the care of babies and toddlers aged 0-2 years. Workers must decide how to apply the evidence in their practice but they can feel confident that the research overview provides an up-to-date, balanced and reliable summary and interpretation of the relevant research literature.

References

1. Murray L. The psychology of babies: how relationships support development from birth to two. London: Constable & Robinson; 2014.

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