

Part 2

You are going to read an extract from a newspaper article. Six paragraphs have been removed from the extract. Choose from the paragraphs A–G the one which fits each gap (7–12). There is one extra paragraph which you do not need to use.

Baby Talk

As much as you may want to believe it, there is no basis to the feeling that your infant is smiling at you, and smiling because he knows you're his mother. He might look as wise as the ages when he gazes into your eyes – but face up to the facts. There's nothing in there, unless we count the blank slate. And don't read too much into his babbling either. He's just learning how to use his face muscles. That's what my doctor told me when I took my baby for his check-ups. I doubted this, but I knew science was on her side so I kept my opinion to myself.

7

This is not just hopeful theorizing. Thanks to new technology that allows scientists to study living brains, the bank of evidence is growing fast. Another great advance was made last week with the publication of research by neuroscientist Laura Ann Petitto of Dartmouth College. The aim of the study was to challenge the traditional understanding of early language development, which holds that babies must develop motor skills before they can begin to connect sounds to meanings.

8

They looked at the way babies moved their mouths when babbling (making sounds with a consonant-vowel repetition) and contrasted this with the movements when they smiled or made non-babbling noises. They studied five English infants, five French infants and five Spanish to be sure they weren't studying mouth movements specific to one language.

9

'The mouth is being carved out depending on the function of what's coming out,' Petitto explains. 'And this function could only occur if different parts of the brain are participating in the control of different functions.' Her researchers deduced that 'the right side of the face – used for smiling – is controlled by the left hemisphere of the brain, where the emotional control centres are located.'

But babbling 'is a left-side mouth function and controlled by the right side of the brain – the centre for speech.'

10

And that is not all it can do. According to other researchers in the field, babies can 'distinguish human faces and voices from other sights and sounds and prefer them'. Although they are born short-sighted, they can see people and items clearly at a distance of about 30cms. Their preference for stripes and other patterns shows they are imposing order on their perceptions in early infancy. Long before they can crawl, they can tell the difference between happy features and sad features.

11

They can grasp simple arithmetic by using the same capacity, according to Petitto. 'It is well established that infants look longer at things that are unexpected or surprising to them. In a recent study, the researchers built up the expectation that a puppet would jump, say two times.' When the infants lost interest, they continued to show one group of infants what they had already been watching. Another group was shown a puppet that jumped three times. Petitto explains, 'The infants looked longer at the puppet when it jumped three times, showing they had detected the change in number.'

12

But this is not the end of the story, as the nature side of the nature/nurture divide has claimed for so long. Despite this standard capacity, babies depend on their vast reserves of innate knowledge in the way you and I depend on the programs we put into our computers. What matters most is what we do with these programs, and it's the same with babies. They're born with powerful learning tools that allow them to explore and learn about the world around them. And what they learn goes on to determine the way their brains are wired, and how they think.

- A** 'What this tells us', says Petitto, 'is that language processing starts far earlier than we ever thought and without much language experience. As young as five months, the brain is already discriminating between a purely physical response and an oral one.'
- B** But they depend on more than innate knowledge and learning abilities. People instinctively want to help babies learn. A lot of this tuition is, they claim, unconscious and unwilling. The typical example would be the stern businessman who, if left holding the baby, lapses into baby talk.
- C** The results showed uniformity in all cases. When the babies smiled, they opened the left sides of their mouths, using more muscles on the left side of the face. When they were making 'non-babbling' noises they used the middle of the mouth, and when they babbled they pulled down on the right side of the mouth, using more right-side muscles.
- D** Now at last it is science that is having second thoughts. It turns out that babies know a lot more than our best minds previously suspected. If they smile, it may well be because they recognize your voice. When they babble, they are probably not speaking nonsense but practising speech.
- E** This is borne out by the fact that they can imitate these same expressions, and by the time they're old enough to pick up a phone they can mimic what they've seen others doing with it. This means they can learn how to use things just by watching people.
- F** So much for the blank slate then. Much of this research would seem to disprove many of our oldest and fondest assumptions, not just about speech but about how people are like us and how we are like other people. It appears that our brains all start out with the same approach to learning and development.
- G** Petitto and her team take a different view. 'When a child babbles, it's not just trying to get control over its facial muscles,' she says. Babies are 'literally trying to say the sounds' they hear, and trying to make sense of 'the patterns of sounds in the world around them.'