



BUILDING *brains*

KATE BARBER talks with well-known neuroscience educator **NATHAN WALLIS** about how children’s brains develop, and why ‘we need to stop treating our four-year-olds like they are seven’.

Talking about the brain development of 2-7-year-olds, Nathan provides a crash course on the neurosequential model of the brain – how it is built from the bottom up, with the development of different ‘brains’ taking centre stage at different times.

As Nathan explains, the development of Brain 1, the brain stem, takes centre stage from 0-6 months. Between six months and two years, Brain 2, the centre of movement and coordination, develops the most.

Brain 3, the limbic system or emotional brain, ‘comes online’ between 18 months and two years – and so begin the ‘terrific twos’, says Nathan. Until they are around the age of seven, Brain 3 is in control: dictated principally by their feelings, young children see

the world quite differently from Mum and Dad, who have fully mature brains.

Finally, Brain 4, the frontal cortex, moves into centre stage development when a child is around the age of seven. As Nathan explains, ‘everything that makes you brainy, plus everything that makes you a nice person happens in Brain 4’.

Understanding this model is fundamental when it comes to ‘getting’ where our little ones are at – why our three-year-old has a meltdown when we give them two halves of a biscuit instead of a whole. And, as Nathan explains, it helps us to understand why our cultural preoccupation with the ‘early attainment of cognitive skills’ in young children – naming all the colours, identifying letters, counting to 10... 20... 100... – is misguided and potentially detrimental.



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On the brain

Charismatic neuroscience presenter and director of X-Factor Education, Nathan Wallis provides an informative narrative on the different stages of children's neurological development, offering valuable advice for parents across New Zealand and overseas.

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**SMART & READY FOR SCHOOL**

Understandably, as parents, we want to know what we can do to make our kids smart and do well at school. Yet, to support the development of an awesome Brain 4 (the frontal cortex), we need to stop trying to accelerate it, says Nathan, and think rather about meeting the needs of our young ones at the stage of neurodevelopment they are at.

'We have this core belief that the earlier our child does or knows something, the cleverer they are, which simply isn't true', says Nathan. 'We need to stop treating our four-year-olds like they are seven. If we focus on teaching young children cognitive skills before they are ready, we risk skipping the needs of Brains 1, 2 and 3.'

'It's not that literacy and numeracy are bad; it's just that it's not at all helpful to start teaching these too early when children not ready – which is especially the case with boys, whose brains develop more slowly than those of girls.'

A child who knows their alphabet at the age of three or four may have better literacy skills than their peers at age six, he says, but the advantage doesn't stay with them. 'Early cognitive attainment plateaus by about eight, and, for most kids, the advantage disappears in the first year of school.'

HOW WILL THEY TURN OUT?

'We can very accurately predict future outcomes for young children – and it has nothing to do with the alphabet. It all comes down to their disposition about themselves as a learner: what really matters for a child under seven is how clever he thinks he is.'

Nathan presents the picture of two kids. Child A (five) has 'early cognitive attainment', knowing his numbers to 100 and his alphabet. He has been brought up in an environment where he has been extended: when he has shown Mum that he can count to 100, she has tended to say 'great, and what comes next?' When he has got the wrong answer, he has been told the correct one. While he can now count to 101, the message he has received is that he is not quite as clever as he needs to be.

Child B (five) has been brought up in a child-led, free-play environment. He would sooner be out building huts or riding his bike than practising his numbers or writing his name. When asked about himself as a learner, he responds, 'I'm great: I keep trying and work it out, or I just ask Mum and Dad and they help me.' Statistically, says Nathan, Child B is far more likely to get a degree, and far less likely to develop depression and anxiety.

A positive disposition

Nathan offers some advice for parents seeking to support their child to develop a positive disposition about themselves as a learner, and grow in them a love of learning.

1. Let them run outside and play. Child-led, free play allows children to be in charge of their thinking process, without interruption or the imposition of an adult's agenda, and it allows them to sustain their attention and focus.
2. Ask questions that dance in the grey, where there's no right or wrong answer: what does the tooth fairy actually look like? Stop asking closed questions and stop focusing on the 'right' answer.
3. Interact with them. Listen to their stories, and tell stories of your own. Reading is great; but, remember, it's a one-way exchange – two-way is even better.
4. Trust nature: the frontal cortex will roll out naturally if you nurture and support Brains 1, 2 and 3.

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