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Out of Sync – Asynchronous Development

When my daughter was 6 years old she was identified by an Educational Psychologist (EP) as gifted and talented and was operating at the level of a 12 year old in Literacy, language and communication skills, verbal and non-verbal comprehension, reading, writing and spelling. It was a complete shock to me as her mum; I knew she was bright but had no idea she was operating so far ahead of her chronological age in many areas and that she was considered "gifted and talented." She had been inquisitive, observant and interested in the world from the day she could focus. I knew she was intelligent, but which mother does not think her beautiful baby is the most intelligent in the world? She spoke and walked early, never crawled, taught herself to read and always asked questions about difficult subjects for weeks on end and she seemed to view the world differently; her thinking skills seemed to operate on a different level, she had the ability to make connections from a very early age but being my first and only child I had nothing to compare to; I had presumed till now that her development was normal but pressure from society had made me question whether she had some other disorder.

At the end of the assessment I asked the EP what his diagnosis meant, what did I have to do? Did I have to treat her differently? How was I to care for her? How was it going to affect her education and life? Wasn't she just my beautiful baby and as long as I loved and cared for her, fed and clothed her, washed, played and educated her and generally look after her like any new mother would, wouldn't she grow up to be happy, healthy, balanced and content child. I didn't want motherhood to be complicated or my baby to be treated differently; I just wanted to have the usual mother and baby relationship whatever usual is.

The EP thought about my questions, long and hard, for several minutes and then he answered as follows:

"Its going to be quite difficult to get a balance for this child, sometimes she will behave as a 12 year old and be able to debate and discuss like an adult; other times she will suck her thumb, ask to sit on your lap, need a cuddle and throw a tantrum like a 5 year old – it can and will be very confusing and very challenging for all concerned."

Never a truer word spoken! His words have resounded in my ears frequently over the past 17 years because that is exactly what happened and still does. On the one hand she was a young child developing normally in every aspect except for her intellect or cognitive ability. She was not gifted and talented in every aspect of the curriculum although she was an overall bright child; no flies on her some would say!

She loved learning in every aspect of the word and thrived in nursery and preschool; she had an insatiable appetite for learning, never getting enough. She would wake every morning till she was about 6 years old and her first words would be "What are we going to do today, mummy?" I was exhausted; everyday felt like a roller coaster I could never get off. Everything we did together she treated as a learning experience asking question after question on every subject imaginable and this all continues today.

The brain matures differently in high ability children. Our social and emotional brain generally tends to mature appropriately to our chronological age but in some people the cognitive, thinking or intellectual areas of our brain can mature at a faster rate in some cases this is called asynchronous development or "out of sync."

This can lead to misunderstandings on all levels. Children and young people can appear to be very mature in certain areas and at certain times of their development but at other times can be extremely immature. It can lead to negative behaviour, tantrums, and rudeness, an air of arrogance, precociousness, underachievement and isolation. Sometimes when some of these difficulties are displayed children and young people can be labelled and misdiagnosed because many of the traits of high ability or giftedness overlap with other disorders.

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Research now tells us that in some cases the brain matures differently in high ability children. The social and emotional brain seems to, generally, mature at a child's chronological age but the cognitive/thinking part of the brain in some cases can mature faster as the child grows.

The following extract is taken from a research project carried out by the United States National Institute of Mental Health which you can read on the following link.

http://www.nih.gov/news/pr/mar2006/nimh-29.htm

Youth with superior IQ are distinguished by how fast the thinking part of their brains thickens and thins as they grow up, researchers at the National Institutes of Health's (NIH) National Institute of Mental Health (NIMH) have discovered. Magnetic resonance imaging (MRI) scans showed that their brain's outer mantle, or cortex, thickens more rapidly during childhood, reaching its peak later than in their peers — perhaps reflecting a longer developmental window for high-level thinking circuitry. It also thins faster during the late teens, likely due to the withering of unused neural connections as the brain streamlines its operations. Drs. Philip Shaw, Judith Rapoport, Jay Giedd and colleagues at NIMH and McGill University report on their findings in the March 30, 2006 issue of *Nature*.

"Studies of brains have taught us that people with higher IQs do not have larger brains. Thanks to brain imaging technology, we can now see that the difference may be in the way the brain develops," said NIH Director Elias A. Zerhouni, M.D.
While most previous MRI studies of brain development compared data from different children at different ages, the NIMH study sought to control for individual variation in brain structure by following the same 307 children and teens, ages 5-19, as they grew up. Most were scanned two or more times, at two-year intervals. The resulting scans were divided into three equal groups and analyzed based on IQ test scores: superior (121-145), high (109-120), and average (83-108).

The researchers found that the relationship between cortex thickness and IQ varied with age, particularly in the prefrontal cortex, seat of abstract reasoning, planning, and other "executive" functions. The smartest 7-year-olds tended to start out with a relatively thinner cortex that thickened rapidly, peaking by age 11 or 12 before thinning. In their peers with average IQ, an initially thicker cortex peaked by age 8, with gradual thinning thereafter. Those in the high range showed an intermediate trajectory (see below). While the cortex was thinning in all groups by the teen years, the superior group showed the highest rates of change.

"Brainy children are not cleverer solely by virtue of having more or less gray matter at any one age," explained Rapoport. "Rather, IQ is related to the dynamics of cortex maturation."
The observed differences are consistent with findings from functional magnetic resonance imaging, showing that levels of activation in prefrontal areas correlates with IQ, note the researchers. They suggest that the prolonged thickening of prefrontal cortex in children with superior IQs might reflect an "extended critical period for development of high-level cognitive circuits." Although it's not known for certain what underlies the thinning phase, evidence suggests it likely reflects "use-it-or-lose-it" pruning of brain cells, neurons, and their connections as the brain matures and becomes more efficient during the teen years.
"People with very agile minds tend to have a very agile cortex," said Shaw. The NIMH researchers are following-up with a search for gene variants that might be linked to the newly discovered trajectories. However, Shaw notes mounting evidence suggesting that the effects of genes often depends on interactions with environmental events, so the determinants of intelligence will likely prove to be a very complex mix of nature and nurture.

Also participating in the study were Drs. Dede Greenstein, Liv Clasen, Rhoshel Lenroot, and Nitin Gogtay, Child Psychiatry Branch, NIMH; and Drs. Jason Lerch and Alan Evans, Montreal Neurological Institute, McGill University.

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It's vitally important for those working with, and teaching, high ability pupils and students to understand the way the brain develops differently in the gifted and talented thus helping us to recognise and have a greater understanding of the traits and characteristics of high ability pupils and students.

Young people with high ability think differently and see the world differently, they respond differently to situations and conversations. They can be sensitive to world issues; have heightened senses and question rules and boundaries. They dislike unfairness and injustice and can be arrogant, precocious and rude. They can be loners, obsessive, pedantic and perfectionists. They can have low self esteem and confidence and underachieve.

Many of these traits overlap with other disorders, e.g. Autistic Spectrum Disorders, Obsessive Compulsive Disorder, Sensory Integration Disorder, Bipolar Disorder, Attention Deficit Hyperactivity Disorder and many more therefore it is important not to misdiagnose. Diagnosis should only be made by an Educational Psychologist or a suitably qualified professional. Many of the children and families we work with may appear to resemble some of the characteristics of these disorders but generally they are just very bright intelligent children and young people who are misunderstood.

Books

Misdiagnosis of Gifted Children and Adults by James T Webb et al
The Out of Sync Child by Carol Kranowitz
The Survival Guide for Parents of Gifted Kids by Sally Yanhke Walker
Gifted Children by Kate Distin

Websites

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