



## *Children's Court of New South Wales*

**Children's Legal Service Conference  
Saturday 11th October 2014, Rydges World Square**

**Judge Peter Johnstone  
President of the Children's Court of NSW**

# **“The Grey Matter Between Right and Wrong” Neurobiology and Young Offending**

## **Introduction**

1. This paper has been prepared for the Children's Legal Service Annual Conference, and is to be presented to Criminal Lawyers, Children's Court practitioners and those with an interest in the crime jurisdiction of the Children's Court.<sup>1</sup>
2. The paper covers the fields of psychiatry, psychology and the criminal law. Whilst I am not an expert in psychiatry or psychology, I believe it is important for us to all develop an understanding of how these fields interconnect, influence and affect our work as practitioners.
3. Throughout my time at the Children's Court, I have undertaken a great deal of research into the issues and circumstances surrounding the reasons young people commit offences.
4. In undertaking this research the area of neurobiology, or brain development, has piqued my interest. In this paper, I will not be discussing the principle of *doli incapax*. I will, however, be discussing the grey area between right and wrong by reference to neurobiology – brain science.

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<sup>1</sup> I acknowledge the considerable help and valuable assistance in the preparation of this paper provided by the Children's Court Research Associate, Paloma Mackay-Sim.

5. I will first examine briefly traditional theories regarding moral culpability in sentencing. Following this, I will canvass neurobiological research regarding brain development during adolescence. Thirdly, I will discuss the connection between brain development and the young people who come before the Children's Court, many of whom have suffered significant maltreatment and neglect. I will conclude by traversing the ways you may use this information to assist you in practice.
6. Before embarking on that discussion, on my own behalf and on behalf of all of the specialist Children's Magistrates in the Court, I wish to sincerely acknowledge your hard work and dedication to this challenging area of law and practice. I am continually impressed by your professionalism, passion and commitment to this jurisdiction. You are all performing a significant service to the community and your work does not go unrecognised.
7. Given your familiarity with this jurisdiction, I appreciate that you are all aware that children and young people process situations very differently from the way in which you and I process the same situations.
8. If we cast our minds back to when we were teenagers, with the benefit of hindsight and more mature insight, most of us can identify moments when we made bad decisions. While we can identify these moments and reflect upon our own experiences, it is critical that we are able to posit these experiences within the broader theoretical and scientific context by asking the simple question. Why? Why did I behave that way? Why did I think that behaviour was okay? And for some of us, 'Why did I ever wear *that*?'
9. While we may never have specific clarity on any of these questions, a broader understanding of adolescent brain development may assist in understanding not only our own experience of adolescence, but the experiences of our clients.

10. Additionally, this research may impact upon the way you communicate and engage with your clients, and may alleviate the frustrations you experience when your clients do not understand the gravity of the consequences facing them.
11. This research may also assist your understanding of the best alternative justice processes and services to propose to the Court in your submissions on sentence.
12. Most importantly however, this research will add to our collective understanding as professionals of the children and young people in this jurisdiction and ensure that we observe and uphold the principles enunciated in s 6 of the *Children (Criminal Proceedings) Act 1987* (CCPA), the *Young Offenders Act 1997* and the United Nations Convention on the Rights of the Child.
13. Therefore, my primary objective in presenting this information to you is to begin a dialogue, not to present a settled thesis. The intention of this paper is to inform with a view to improving our collective understanding of young people and the ways in which they think and behave.

## **Part 1 – Moral Culpability and Sentencing**

14. As far as sentencing is concerned, the concept of the moral culpability or individual responsibility of the offender serves as an important framework informing the sentencing process. It is an historical model of punishment, arising in some part from theories of rational choice and deterrence.<sup>2</sup> Whilst it is not the only theory informing sentencing, it is one theory of punishment, a consequence of which is the apportionment of blame.

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<sup>2</sup> The link between these theories has been well established in numerous articles, including: Cornish, D., Clarke, R (eds.) 'The Reasoning Criminal: Rational Choice Perspectives on Offending' (1986) Klepper, S., Nagin, D, 'The Deterrent Effect of Perceived Certainty and Severity of Punishment Revisited' (1989) 27 *Criminology* 721, Paternoster, R. 'Decisions to Participate in and Desist from Four Types of Common Delinquency: Deterrence and the Rational Choice Perspective' (1989) 23 *Law Society Review* 7.

- 15.** The deterrence and rational choice paradigms propose that the offender is able to weigh a number of factors prior to committing a criminal offence. Specifically, that the offender is in a position to consider the legal implications of their behaviour, what the likely cost will be to victims and the community, and weigh those factors against the rewards.
- 16.** These paradigms assume that an offender makes an informed decision to act, having rationally deliberated the positives and negatives of their actions.
- 17.** Paternoster cogently articulates this concept stating that these theories describe:

*“...the idea of a thinking, rational offender who calculates the advantages and disadvantages of offending...”<sup>3</sup>*

- 18.** The notion that young people can be expected to rationalise in the same way as adults is recognized by many members of the community. Paternoster states:

*“Nevertheless, youths as well as adults can be expected to consciously weigh the expected benefits of legal and illegal courses of action, the moral significance of their infractions, and the implications of such action for important social relationships in their lives. We can expect them also to be sensitive to the opportunities for legal as well as illegal action.”<sup>4</sup>*

- 19.** Rational choice models also note that when considering whether to commit an illegal act, offenders consider whether they have better alternatives.

- 20.** As Clarke and Cornish assert:

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<sup>3</sup> Paternoster, R. ‘Absolute and Restrictive Deterrence in a Panel of Youth: Explaining the Onset, Persistence/Desistance and Frequency of Delinquent Offending’ (1989) *Social Problems*, 36 (3) at 292.

<sup>4</sup> Ibid at 293.

*“It is presumed that those with fewer satisfying alternatives will find illegal actions more appealing.”<sup>5</sup>*

**21.** The fact that some offenders may have ‘fewer satisfying alternatives’ links to the broader sociological reasons people commit criminal offences.

**22.** Bennett and Broe assert that theories suggesting that the commission of crime is consequent upon the choice of the offender mask the broader reasons for offending. They state:

*“Thus, whilst an individual who commits a crime will most certainly be considered as a ‘proximate’ cause of that crime (and to that extent, personally responsible) crime research also suggests there are a consistent set of risk factors, more ‘distal’ causes, that also make significant contributions to whether or not a crime is carried out.”<sup>6</sup>*

**23.** I am certain that you are all aware of the ‘distal’ causes Bennett and Broe refer to, including but not limited to, low socio-economic status, childhood maltreatment and drug and alcohol issues.<sup>7</sup> I will return to a discussion of these ‘distal’ causes of crime in chapter three, when I discuss the neurobiological impacts of children who have suffered maltreatment.

**24.** Whilst general sentencing theories focus upon rational choice and moral culpability, these theories are somewhat tempered by the principles enunciated in s 6 of the CCPA.

**25.** Specifically, s 6(b):

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<sup>5</sup> Clarke, R.V., Cornish, D. ‘Modelling offenders’ decisions: a framework for research and policy’ (1985), in Michael Tonry and Norval Morris (eds.) *Crime and Justice: An Annual Review of Research*, Chicago. University Chicago Press, pp. 147-85.

<sup>6</sup> Bennett, H., Broe, GA, ‘Brains, biology and socio-economic disadvantage in sentencing: Implications for the politics of moral culpability’ (2008) 32 *Criminal Law Journal* 167-179 at 168.

<sup>7</sup> *Ibid* at 168.

*“That children who commit offences bear responsibility for their actions, but, because of their state of dependency and immaturity, require guidance and assistance.”*

- 26.** We can infer that s 6(b) of the CCPA to some extent dilutes the paradigms of moral culpability and rational choice. The inclusion of ‘immaturity’ reflects an understanding of the cognitive and neurobiological processes at play when young people commit crimes.
- 27.** I must emphasise that this paper is not directed to a discussion of *doli incapax*. I will not be discussing the age at which a child or young person is able to identify the difference between right and wrong or the controversy surrounding this issue.
- 28.** However, I will be speaking to the ‘immaturity’ of children and young people from a neurobiological perspective. I will address this issue by reference to the brain processes associated with adolescent development.
- 29.** Before moving onto the nuts and bolts of brain science, I thought it apt to refer you to Zimring’s particularly articulate enunciation of the effect of this immaturity. Zimring states:

*“The immaturity of an actor has a pervasive influence on a large number of subjective elements of the offense, including cognition, volition and the appreciation that behaviour such as setting a fire can produce results like the death of a person.”<sup>8</sup>*

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<sup>8</sup> Zimring, F.E. ‘The Hardest of the Hard Cases: Adolescent Homicide in Juvenile and Criminal Courts’ (1999) *Virginia Journal of Social Policy and the Law* 6 at 437.

## Part 2 – Neurobiology and Adolescent Development

30. A great deal of research has been undertaken over the years to show that the pre-frontal cortex of the brain (the frontal lobes) is the last part of the human brain to develop. The frontal lobes are those parts of the brain associated with identifying and assessing risk, managing emotion, controlling impulses and understanding consequences.<sup>9</sup>
31. We know that rational choice theory argues that young people are able to undertake a logical risk assessment in their decision-making process. Neurobiological research, on the other hand, argues that adolescent decision making is not linear, sophisticated and predictable.
32. A further complication is that brain development differs depending upon a number of variables and that ‘neuro-scientific data are continuous and highly variable from person to person: the bounds of ‘normal’ development have not been well delineated.’<sup>10</sup>
33. Despite this, the neurobiological research to date shows that whilst adolescents may appear to function in much the same way as adults, they are not capable of the executive function adults possess.
34. Executive function of the prefrontal cortex is explained by Johnson, Blum and Giedd, as:
- “...a set of supervisory cognitive skills needed for goal-directed behaviour, including planning, response inhibition working memory and attention. Poor executive functioning leads to difficulty with planning, attention, using feedback and mental inflexibility, all of which could undermine judgment and decision making.”<sup>11</sup>*

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<sup>9</sup> McCuish, E.C, Corrado, R., Lussier, P. and Hart, S.D. ‘Psychopathic traits and offending trajectories from early adolescence’ (2014) *Journal of Criminal Justice* 42, pp.66-76.

<sup>10</sup> Johnson, S.B, Blum, R.W, Giedd, J.N. ‘Adolescent maturity and the brain: the promise and pitfalls of neuroscience research in adolescent health policy’ (2009) *Journal of Adolescent Health* 45(3) pp.216-221 at 220.

<sup>11</sup> *Ibid* at 218.

35. If we liken executive function of the prefrontal cortex to a type of control centre of the brain, we can recognise that during adolescence, this control centre is under construction. As such, a young person's ability to undertake clear, logical and planned decision making prior to acting in also under construction.
36. Neurobiological development will continue beyond adolescence and into a person's twenties and different people will reach neurobiological maturity at different ages.<sup>12</sup>
37. In simple terms, according to neurobiology, a young person is unable to make any rational choice, let alone the rational choice to commit a criminal act.
38. This is not to say that the findings from neurobiology research exculpate all young offenders from criminal responsibility. Rather, these findings indicate that there is a grey area between right and wrong when considering the moral culpability of a young offender.

### **Part 3 – Brain Development and Childhood Maltreatment**

39. A reality faced by all practitioners in this jurisdiction is that the young people we deal with are often what former President of the Children's Court, Judge Marien, described as 'Cross-over Kids'.<sup>13</sup> Specifically, young people who have been before the court in its Care jurisdiction frequently come before the Court in its Crime jurisdiction later in life.

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<sup>12</sup> Midson, B. 'Risky Business: Developmental Neuroscience and the Culpability of Young Killers', (2012) *Psychiatry, Psychology and the Law*, 19 (5), pp.692 -710 at 700. See also: Gruber, S.A. Yurgelun Todd, D. A. 'Neurobiology and the Law: A role in Juvenile Justice' (2006) *Ohio State Journal of Criminal Law*, 3, pp.321-340 at 332.

<sup>13</sup> 'Cross-over kids' – childhood and adolescent abuse and neglect and juvenile offending', Judge Mark Marien SC, Paper presented to the National Juvenile Justice Summit, Melbourne, 26 and 27 March 2012.

- 40.** In Judge Marien’s paper he cites the work of the eminent psychologist Dr Judy Cashmore AO, who asserts that there is an established link between childhood maltreatment and subsequent offending in adolescence.<sup>14</sup>
- 41.** It follows then, that childhood maltreatment will significantly impact upon the child or young person’s brain development. The distal factors affecting brain development may be exemplified by parenting issues, nutrition, health as well as social interactions and conflict. This impact may be compounded by instability in the creation of developmental attachments through numerous out-of-home care placements, resulting in criminal offending.<sup>15</sup>
- 42.** It is well established that children who have experienced maltreatment, particularly in cases of severe neglect or abuse, may experience developmental issues as a result. For example, Bennett and Broe describe the ‘stress response’ by the brain catalysed by childhood maltreatment.<sup>16</sup>
- 43.** Bennett and Broe go on to articulate the following:
- “Child neglect and abuse is considered to have neurobiological effects well beyond this ‘stress response’. These findings provide neuro-scientific evidence for the notion that parenting and childcare and education are not ‘soft’ factors....but factors that have a direct impact upon the neurobiological development of the individual.”<sup>17</sup>*

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<sup>14</sup> Cashmore, J. ‘The link between child maltreatment and adolescent offending: systems of neglect of adolescents’ (2011) *Family Matters*, Australian Institute of Family Studies, Issue no. 89.

<sup>15</sup> Ibid.

<sup>16</sup> Above n 6 at 172. See also: Delima, J., Vimpani, G. ‘The neurobiological effects of childhood maltreatment: An often overlooked narrative related to the long-term effects of early childhood trauma?’ (2011) *Family Matters*, Australian Institute of Family Studies, Issue no. 89.

<sup>17</sup> Above n 6 at 173.

44. A young person may have other cognitive impairments sustained as a result of childhood maltreatment, such as foetal alcohol syndrome, brain injury as a result of 'shaken baby syndrome' or other unexplained injuries and psychological impairments.
45. As brain development is a fluid process, it is critical that we maintain an awareness that we are not only dealing with the developmental issues affecting adolescents generally when dealing with young offenders. We must supplement our understanding of the developmental processes affecting adolescents, with the developmental processes that affect those adolescents who can be classified as 'cross-over' kids.

#### **Part 4 – Conclusion**

46. I appreciate the numerous pressures placed upon all of you as practitioners in this jurisdiction and again, I applaud you for your diligence. Accordingly, I can appreciate that you are all wondering what practical relevance this paper holds for all of you.
47. I understand that some practical issues are common to all of you as practitioners in the children's jurisdiction. Specifically, issues relating to mental health, drugs and alcohol, rehabilitation and alternative justice procedures.
48. Accordingly, I submit that this paper is relevant to you for a number of practical reasons. Firstly, by providing an academic overview of the neurobiological factors contributing to adolescent behaviour, you may develop an understanding of why your client behaves in certain ways.

- 49.** You may also be able to better communicate and engage with your clients by appreciating that they are less likely to understand the proceedings, process what is going on and understand the consequences.
- 50.** Additionally, an understanding of the neurobiological processes affecting your clients may assist in submissions regarding mental health issues in addition to submissions on sentence. The fact that a young person's brain is still developing makes them more likely to respond to rehabilitative and alternative justice processes.