BRAIN SCIENCE AND EARLY INTERVENTION: joint meeting of the BSA Childhood Study Group and the BSA Families and Relationships Study Group, Goldsmiths, 20th June 2013

Rescuing Billy Elliot's Brain

(45 minutes)

NICOLA – 9 mins

- Introduction
- Policy and practice context
- Our research study

In this presentation we're going to be talking about some emergent findings from a project that we're conducting, funded by the Faraday Institute under its Uses and Abuses of Biology programme. And Val and Ros are going to talk about some of the many and varied ways in which biological arguments or 'evidence' are being enrolled and, we argue, inappropriately applied to the point of abuse. But first I'm going to say a bit about the policy and practice context and what our study's aims are. I'm going to start by showing you a video that has been placed on the home page of the Early Intervention Foundation, the UK's policy evidence centre on early intervention.

VIDEO http://www.earlyinterventionfoundation.org.uk/

SLIDE 2

That was a video from the Center on the Developing Child at Harvard and it takes pride of place on the home page of the UK's Early Intervention Foundation, as deterministic ideas about the importance of 'brain architecture', parenting and early intervention policies cross the Atlantic and find a home in UK policy documents such as these (refer to slide). The Allen Report, *Early Intervention: the Next Steps*, which built on Graham Allen and Iain Duncan Smith's *Early Intervention: Good Parents, Great Kids, Better Citizens* (2008) used brain science, by its own admission, to 'offer sharper tools' to take early intervention to 'a new and higher level' and was closely followed by *Early Intervention: Smart Investment, Massive Savings*, both of which used this brain scan image on their covers – for Smart Investment, this was accompanied by an image of gold bars.

In *the Next Steps*, Allen uses a range of research findings to extrapolate a scientific rationale for early intervention policies that target children aged 0-3. The second chapter of the report takes the brain as its focus. It is divided into themes or statements such as:

SLIDE 3

'Early experiences determine brain architecture'. 'Secure attachment' is then briefly discussed as a common-sense way to achieve the opposite outcomes of those associated with 'anxious

attachment', which are vaguely said to include propensities towards higher levels of domestic violence, alcohol and substance misuse, and 'having multiple sexual partners'.

The remaining sections of this brief chapter can be seen on the slide. The reader is directed to *Better Citizens* for 'a broader look' at the 'science behind early intervention' (13).

SLIDE 4

Better Citizens takes in a small but eclectic mix of sources, from the Telegraph to T.S. Eliot, to support its central thesis that our 'broken society' can only be 'mended' by tackling its 'dysfunctional base', which threatens a 'feral future on our streets' (22) (10).

Anecdotal evidence from primary school heads who have told Allen they can 'spot the 'difficult kids' on day one' (16) sets up the argument for early intervention and the enticing prospect of the latest 'scientific and evidence-based analysis' (17) posited as explaining 'what happens to children's brains between the years of 0-3'. The work of David Olds is cited as making 'obvious' the imperative of 'maternal responsiveness' (17).

The brain image that is used in much of the literature is derived from Bruce Perry's research on the effects of cortisol and his work, as well as that of David Olds, who developed the Nurse-Family Partnership programme in the US, with the use of RCTs, provides much of the justification for Allen and IDS's ideas. The self-supporting nature of this discourse is exposed with reference to an already thin bibliography, which is fleshed out (for example) by indirectly citing a 13-page pamphlet, which in turn cites Perry 40 times.

Frank Field's report of the Independent Review on Poverty and Life Chances also cites Perry and attachment theory to advocate parenting styles that minimise stress. And the Tickell Review of EYFS stresses the importance of the first three years, experience-expectant learning and attachment.

SLIDE 5

The Allen Report and the Royal Society report, *Neuroscience Implications for Education and Lifelong Learning* (2011) are cited by the Munro Review of child Protection (2011) to support the assertion that the first eighteen months 'when the emotional circuits are forming' (71), are critical. But the Royal Society report (18) warns of 'neuromyths' created by the brain development and learning 'industry' – and the Munro Review's reference turns out to be a typo so it is in fact just the Allen report that the Munro Review relies upon to substantiate this 18-month claim.

The Munro Review goes on to say: '[t]he evidence demonstrates how deficiencies in early years experiences have an enduring impact on the child or young person's subsequent development and opportunities in life', the reference for which is the (American) National Research Council's (2000) report From Neurons to Neighbourhoods: the Science of Early Childhood Development (Schonkoff & Phillips), which is much more cautious than this

passage suggests – to give you an idea of the 'evidence' that these policy documents are not citing, From Neurons to Neighbourhoods' four themes in discussing how early experiences contribute to brain development are: (Refer to slide)

SLIDE 6

The turn towards brain science as an evidence base for early years policy, and the attendant faith in increased returns for a plethora of social concerns, has resulted in funding for early interventions based on RCTs, such as Family Nurse Partnerships which run a programme of interventions with teenage mothers that is licensed by David Olds' Nurse-Family Partnership, and this is one of the areas of practice that we have studied in our research.

Slide 7

Our research process involves looking at key documents, like those I've mentioned, that have shaped and defined political and policy engagement with neuroscience in relation to early years childrearing. And we're conducting interviews with people who advocate neuroscience as an evidence base in child and family policy and practice, as well as health and early years practitioners, to find out how the discourse of brain science is being translated into practice. Ros and Val will be drawing on our emergent findings in the discussion that follows.

ROS – 10 mins on theorizing brain science, ways brain science gains influence, risk of critiques, supporting policy direction

SLIDE 8

Ideas about brain science and early intervention resonate with what Joelle Abi-Rached and Nikolas Rose have referred to as 'the molar management of human affairs'. Underpinning this molar management is what they term the 'neuromolecular gaze' – by which they mean a hybrid style of thought, approach, language and perception that reduces understanding of complex phenomena to a molecular understanding gathered around the brain, and which means that intervention in the brain can shape behaviour. They say that people are increasingly defined, and attempts made to manage them, in terms of the brain:

> We are seeing a concerted attempt, across Europe and North America at least, to argue that the discoveries of these neurosciences hold the key to the management of all manner of human activities and experiences.

In their subsequent book, *Neuro*, Rose and Abi-Rached build on the notion of neuroscience as a transcending hybrid to put forward what they refer to as a transcendent 'hopeful ethos' associated with new styles of thought in neuroscientific knowledge. Their argument is that that the concept of brain plasticity that's a key feature of contemporary neuroscience has the potential to refute biological reductionism and determinism by revealing ongoing mutability through the interaction of biology as brain and environment, and also provides a challenge to mind/brain dualisms.

The hopeful ethos of plasticity means that we/society will be able to shape our brains – which are evolved for sociality – through shaping environmental input in good ways, for the betterment of society. This also provides a challenge to rational neo-liberal ideas of the individual. An issue that's left aside however, is the unequal, gendered, raced and classed, environment within which ideas about the brain are engaging.

The other side of the coin of the hopeful ethos of taking personal responsibility for our selves for the collective good has the more vindictive ethos of blaming the victims. When Rose and Abi-Rached say that:

> we are now acquiring the obligation to take care of our brain – and the brains of our families and children – for the good of each and of all

what we assume to be their collective 'we' is very easily understood as an individualized 'you'.

The hopeful ethos with respect to 'our' ability to take responsibility for and govern the future rather than be at the mercy of what happens feels a bit naïve to us in that respect. Indeed, Rose and Abi-Rached themselves discuss how neuroscience has latched very easily onto the psychological ideas that are entrenched in how we understand childrearing. Despite their espousal of a hopeful ethos, they refer to the brain as the current mode of objectivity about the development of children is the latest in a longstanding focus, since the 19th century, on dealing with social ills through acting on children by intervening in and governing their inadequate parents and families – a recurring of a strategy that they note hasn't had much success.

So how has a version of brain science gained such influence in the early years? In his book '*The Myth of the First Three Years'*, John Bruer discusses a number of means by which neuroscience has been and is used, or misused, by early years advocates in the USA as a sort of public relations drive to ensure funding for programmes to help disadvantaged children. Pre-school intervention programmes were criticized for not being effective, so the subsequent counter to that was that, because these initiatives only kicked in once a child reached three years, too much brain development had occurred by then to be changed by a pre-school programme. Much earlier intervention was required – so please fund it.

So the very non-plastic assertion of a three years-old brain hardwiring cut off point that infuses much policy and practice literature is more determined by the age-range of a service delivery than it is by neuroscientific fact.

SLIDE 9

Rose and Abi-Rached argue that a range of conceptual, technological, economic and bio-political 'mutations' have enabled neuroscience to 'leave the laboratory and gain traction in the world outside'. As well as the latching of neuro discourses into already embedded psy discourses, these reasons include the equipment that enables the scanning of brain functions.

In themselves, images of the brain such as the one on this slide, which is used extensively in early years materials, lend credibility to deterministic statements about

brain development just by their very presence. These images seem to have a strong hold on the imagination as a concrete representation of the mind and indeed personhood, becoming what another commentator has called 'a secular icon'. Children and people generally are posed as comprised by their brains and parents are rearing the brains. For example, one of the MPs we interviewed described the contrasting child brain scans image as 'a brain that's loved and nurtured and one that isn't'.

Sloppy brain science ideas take correlations as causal, where activity in a brain region is seen as causing psychological and social processes. The fact that two things are identified as happening together does not automatically mean that one causes the other; the fact that blood flows in one part of a brain are shown as 'lit up' on an fMRI scan doesn't mean that the rest of it's inactive – indeed the images aren't straightforward representations of activity at all, nor is it straightforward as to what activity in a region of the brain 'means' or 'causes'.

And in particular narrow ideas about rigid critical or sensitive windows of development are over-emphasised, where lack of a certain type of parental stimulation early on in a child's first years are posed as causing permanent stunting of socio-emotional development – graphically represented by the shrunken brain element of the image.

SLIDE 10

Increasingly such over-claiming and misrepresentation of neuroscience has come under challenge, including by neuroscientists, in books, articles and other media. Blogs such as The Neurocritic, Neuroskeptic and Neurobonkers point out the lapses in bad neuroscience and in the neuromolecular gaze generally. For example, the top quote is from an op-ed piece in the New Yorker on 'neuroscience fiction', by Gary Marcus, a neuro-psychologist at New York University:

> Our early-twenty-first century world truly is filled with brain porn, with sloppy reductionist thinking and an unseemly lust for neuroscientific explanations. But the right solution is not to abandon neuroscience altogether, it's to better understand what neuroscience can and cannot tell us, and why."

At the moment though, neuroscience is posed as explaining everything.

More specifically, assertions such as windows of opportunity in which children's brains are hard wired by the time they're three or earlier, with how their mother in particular interacts with them being the causal feature in whether and how they develop emotionally and socially, have been challenged as part of this. For example, in her DeevyBee blog, Oxford Professor of Neurodevelopmental Psychology, Dorothy Bishop, has focused on the erroneous implications of neuromania for parenting and intervention, saying:

> I've researched causes of children's language and communication difficulties for many years, and, contrary to popular opinion, parental behaviour does not seem to play an important role.

But John Bruer's point about the way that ideas about early years and brain development were a PR exercise to gain funding alerts us to the point that rather than

brain science driving early years policy it's a useful rhetorical trope to push or further embed a particular policy direction (and as I'll mention later, to avoid others).

SLIDE 11

A prominent UK policy advisor who we spoke to asserted that neuroscience has an advance role in pushing policy but is limited in shaping it,
as you can see from the top quote:

> "If you're asking to what extent does neuroscience and just neuroscience influence policy I would say in a very very limited way … there can be a tendency to want to put the neuroscience argument at the front because it's couched in science and, you know we generally speaking believe science has an authority that social sciences doesn't have … any argument that says that Labour's commitment to early years investment and intervention was based upon neuroscience is, I think, well I just think it's not true basically".

And the London Family Nurse Partnership supervisor we interviewed also pointed out neuroscience's role in justifying public expenditure on early intervention, as in the lower quote:

> "The reality is our service is expensive. We have to be clear that what we're doing *works* and there's a reason for what we're doing so we have to justify it hugely so it's [got to be] absolutely clear that this early period makes a huge impact to people's whole lives, prison populations, all those sort of things in the future."

It's also clear that neuroscientific ideas are being mobilized to show that psychoanalysis works and deserves funding, where the neuromolecular gaze equates the physical brain with the psyche. The Anna Freud Centre in London, for example, now has a Developmental Neuroscience Unit (DNU) that uses fMRI scans and other neuroimaging techniques to demonstrate the beneficial effects of therapeutic intervention, such as Parent-Infant Psychotherapy. And the Kids Company charity ran a 'Peace of Mind' campaign to raise funds. People could go onto their website, access a virtual brain, donate to purchase a virtual neuron, invite their social networks to do the same, and then the neurons would cluster together in the virtual brain. The chief executive was clear that neuroscience is good for fundraising in the business sector when we interviewed her.

It's hard to be against what seems to be a hopeful ethos and progressive early intervention. But bad neuroscience and the mis-interpretative rhetorical value of brain science at the policy level has implications for practice, and they aren't progressive, as Val will now discuss.

VAL – 10 mins

- Mothers and gender (pregnant brain)
- Cycles of deprivation

SLIDE 12

While often couched in the gender neutral terminology of 'parenting' early intervention is almost exclusively directed at mothers as the core mediators of their children's development. Current initiatives like the Family Nurse Partnership program are delivered through pre and postnatal care provision in poor communities. Pregnant women and new mothers are the explicit targets, reflecting the resurgence of old and highly contentious tenets of attachment theory. The core significance of mother child relationships in the early years is asserted through reference to the developing brain and the child's need for an available and responsive primary caregiver. The quality of care is claimed to be reflected in the anatomical structure of the child's neural circuits with sensitive mothers producing 'more richly networked brains'. This biological emphasis embeds and justifies the gendered focus on mothers as naturally better attuned their infant's needs. The foundations for secure attachment and optimal brain development are traced back to pregnancy, with the prenatal period identified as physiologically and psychologically crucial – both in terms of neural growth of the fetus and the establishment of a healthy attachment bond between mother and child.

And this theme is playing out through a focus on the mother's as well as the child's brain. Reflecting a markedly essentialist turn towards viewing sensitive motherhood as biologically determined. We are now seeing a steady stream of articles and papers claiming that mothers' brains are re-programed during pregnancy. This was the headline in a Newsweek article published last year

SLIDE 13
SLIDE 14

And this is the Scientific American

SLIDE 15
SLIDE 16

> What turns a young female concerned mainly about herself into a good mother who will make sure her offspring survive in an otherwise hostile world? The bodily changes of childbearing are obvious, but as we are discovering, the changes in the brain are no less dramatic……. The maternal brain is a formidable object, a singular entity forged by hormones, neurochemicals, and exposure to the ravening demands and irresistible cuteness of offspring. During pregnancy, the female brain is effectively revving up for the difficult tasks that await……let us contemplate the maternal brain in all of its wet majesty. Among its remarkable changes are those that allow the mother to focus on her infant in the persistent attempt to puzzle out the child's needs and wants.

As the interviews we have conducted with FNP nurses suggest there is also a strong practice emphasis on the significance of the mother's brain as potentially producing too much of the

stress hormone cortisol. Nurses were trained to regard maternal stress as a biological risk factor.

SLIDE 17

> I knew physical violence was dangerous, but I hadn't thought of stress as being dangerous prior to that training. And when I realised what cortisol, the mother's cortisol levels would do to the baby, specifically the baby's brain made me think no actually it's not about keeping a baby once their born safe, it's how do we antenatally keep this baby safe.

This concern essentially positioned mothers as in control of their stress reactions and was expressed through appeals to consider what getting stressed might do to the little baby inside them. Notably, stress seemed to be conceptualised primarily in terms of relationships rather than pressures associated with disadvantage or lack of resources. The advice was to avoid arguments, implicitly advocating a submissive position in a context where young pregnant women are at particular risk of domestic violence.

The embellishment of attachment theory with brain science has led to an increasingly explicit gender encoding of early intervention policy. While the default, language of parenting continues to frame key literature, detailed accounts now frequently give way to female pronouns and references to mothers. For example, the Allen report discusses 'maternal responsiveness' and 'mother infant bonding'. This re-inscription of traditionalised and heavily gendered approaches to family policy are pursued in the broader economic context of rising female unemployment and soaring childcare costs, ensuring working partnered mothers on low incomes are increasingly being forced back into the home.

As our research demonstrates, the primacy of mother child relationships is a core principle structuring the everyday work of the Family Nurse Partnership program. In both London and Southampton FNP nurses worked specifically with disadvantaged teenage mothers, with the key aim of strengthening attachment bonds and increasing maternal sensitivity. At the heart of this intervention is the implicit assumption that poverty and disadvantage are personal failings associated with poor parenting. Indeed teenage pregnancy was itself commonly viewed as evidence of a damaged upbringing.

SLIDE 18

> Everyone has a history, a pattern of something that's happened before. It's not a surprise that these young girls get pregnant. What would be interesting to see is the baby's outcomes and whether when they're older they make very different choices (S1)

Nurses were highly enthusiastic about neuroscience and its application to practice, feeling it provided strong proof of attachment theory to policy makers, funders and mothers themselves. The subject of brain development is raised in the very first FNP visit to the

pregnant mother as a way of underlining the crucial significance of participation in the program and the associated imparted advice. Mothers are provided with a photocopied sheet titled 'How to build your baby's brain' featuring a list of activities claimed to enrich neural connectivity. These include reading books to them, singing nursery rhymes, and playing on the floor with them. A variety of creative methods were drawn on by nurses to convey this information. One gave mothers a dot to dot puzzle and called random numbers out to demonstrate the importance of correct brain wiring, another dropped alkerselzer tablets in to water to illustrate how activities fired up new synapses in infant brains.

Reflecting the aim of the FNP program, nurses viewed their role as helping to break cycles of deprivation by providing a better start for the new baby.

> A lot of these young people have had complicated young lives and maybe if left just to their own devices just to bring up their new baby they would repeat patterns that they'd had in their young childhood. This program gives them well researched advice and an opportunity to discuss a different way of parenting this new baby. So just break cycles of behaviour and patterns of behaviour that have grown up within families through generations…..The more we know, the more we understand. The more appropriate support can be given to perhaps try and break what previous generations have, how they've acted. To help the biological processes play out in the way they're meant to when you're doing everything you should have done. So I think it would have a big impact on a lot of people if they knew as much as perhaps we do (Southampton 3)

Despite expressed commitments to work with mothers and their family members, many nurses portrayed the parents of their clients as a malign influence, undermining their work and modelling how not to care for babies.

SLIDE 19

> The young mums know what they want, we're just helping them say you can do that. Sadly many a grandparent will say you can't, why do you think you can do that then 'she don't need that then' (S1)

The cultural deficit model underpinning the FNP program and the focus on embracing change ensures disadvantaged families are automatically conceptualised in terms of risk, with little consideration given to wider structural and economic factors.

ROS – 6 mins on overcoming social class

SLIDE 20

Another emergent theme in our data, embedded in brain science ideas, is social class. Or rather the overcoming of social class in various ways. In interviews with a current MP and a former advisor, each associated with the Labour Party, both talked

about the way that brain science overcomes outmoded ideas about social class as shaping life chances:

> "[Brain science] breaks the class spell. 'Oh well, we could have done, you know but it's the wretched class system in our country, it's so tightly drawn, you know, there's not much we can do about it'. And the early years studies seem to show that's not true."
>
> "When sociologists point out that poor kids have worse life chances than rich kids, is there a danger that people on the Left adopt a kind of crude social determinism … this kind of crude sociological determinism excused, you know, really an abdication of responsibility for the school to do whatever it could to actually change the destiny of those young people whatever their backgrounds."

In their, and the views of other MPs and advisors' of all political colours, brain science overcomes outmoded ideas about social class as shaping life chances. Brain science breaks the class spell and avoids social determinism.

Going down the brain science road, as I noted previously, enables policy makers to endorse and pursue some sorts of policy intervention and to avoid others. They no longer have to bother about ideas about or strategies for redistribution. They can put that aside and focus down on the real, 'molar management of human affairs', issue – how parents bring up their children.

SLIDE 21

And at the practice level, social class can be overcome through early years intervention. One of the family nurses we interviewed constructed a 'Billy Elliott' style story with a sub-text of damaging working class culture, aspirations and masculinity, holding back the development of working class infants whose brains would be stimulated if exposed to high culture:

> The two young people I saw yesterday. He'd never told anyone but he'd wanted to be a ballet dancer. He didn't dare tell anyone because he would be laughed at, so he took up skateboarding. Which was a sort of halfway house sort of thing. They both love classical music but they'd never dare tell anyone because they'd be laughed at. But actually when they told me I was so excited for them and I said you know this is going to help your baby. They were scared to almost say it even to me who's a lot older, it wasn't someone from their own generation, but it was refreshing to hear it, that they didn't dare tell anyone else about. Quite cool really isn't it. He's damaged his knees too much though to be a ballet dancer with his skateboarding so that's a shame. But he's artistic, he's learning to be a tattooist. So he's got art, you know, you can see it in him. But his father didn't want to hear about it, any dancing, wanted football, rugby, that was fine, but any of that other stuff, no don't mention it again. Because he probably did mention it when he was 10, 11, quite bravely. But if his children were allowed to say it in the future aged 10, that would be great wouldn't it?

The classical music that the teenage parents secretly love is going to help their baby, presumably in ways that surrounding the child with more commercial, popular music

will not. The skateboarding has damaged the young father so that the more desirable ballet dancing is now out of the question, and, presumably unfortunately, his artistic streak can now only be channeled into tattooing. This Billy Elliott type story hints at the way that, viewed through the neuromolecular gaze of brain science, ideas about what counts as suitable development and as demonstrating the right sort of brain, aren't straightforward but in fact reproduce gendered and classed value judgments.

It also raises another means by which neuromolecular brain science ideas have gained influence. They resonate with middle class ideas about control over individual destiny in a precarious social world, and what parents can do to counter the ever-present fear of their children slipping into downward social mobility. As John Bruer notes, as soon as early years intervention advocates in the USA promoted the first three years of life as critical for brain development, middle class parents became consumers of brain-based products and activities that would help their children to achieve educationally. This then left them even more anxious.

SLIDE 22

What is good middle class childrearing practice is good childrearing practice.
And parental behaviour that is going to promote or retain social mobility for middle class children is going to result in social mobility for working class children,
as illustrated in this quote from the introduction to the CentreForum liberal think tank report: '*Parenting Matters: Early Years and Social Mobility'*:

> The paper will outline the key scientific concepts behind the development of early brain architecture and skill formation and identify the crucial challenge these present to the desire to improve social mobility. It will argue that these concepts create the imperative for greater efforts at intervention directed at the family sphere to prevent the squandering of individual potential (particularly among children from lower-income backgrounds).

In the early years field, then, rather than a hopeful ethos, the appeal and language of neuroscience is being deployed to produce a deterministic orthodoxy that explains and justifies class inequalities.

VAL –

- Theorising conclusion

The association of brain development with social mobility resonates with the claim that the 'neuromolecular gaze' transcends the determinism characterising previous biological models of personhood. From this perspective fate is not determined at birth, but is shaped by early social processes which mould the brain. But we take issue with Rose and Abi-Rached's reading of the current 'nuerofication' of culture as an open and broadly optimistic trend, particularly the contention that the plasticity principle of neuroscience largely consigns reductionism and determinism to the past.

In relation to early intervention the focus on brain development is being used to support a simplistic almost Social Darwinist account of socio-economic advantage and disadvantage. The current policy preoccupation with the nurturing practices of poor families relies on a meritocratic construction of the wealthy and privileged as having better developed brains. Success is naturalised and unproblematically correlated with brain structure and intelligence. From this perspective the solution to poverty is to make people smarter – children of the poor can then think themselves out of their predicament. Recognition of systematic, structurally engrained inequality merely hold back the power of the individual brain, creating a psychological block that circumscribes achievement and justifies inertia. This is certainly an optimistic standpoint, but it's a cruel optimism devoid of any basis in real experience of hardship. Moreover, the current preoccupation with infant brain development (or a perceived lack of it) mirrors a biological othering of the poor last seen in the heyday of the Eugenics movement. Policy and practice literature is increasingly arguing that the poor are underdeveloped, that there is something missing in their brains, that they don't experience normal emotions, and most powerfully that they don't love their children like we do. While Nikolas Rose points to clear distinctions between contemporary biopolitical strategies and the eugenic practices of the past, striking parallels remain. In line with the eugenics movement in its time, brain science and early intervention proponents receive much of their funding from wealthy philanthropists, regard negative traits and weakness to be rooted in the lower orders and are exerting a formidable influence over public health agendas.

And while the plastic infant brain has replaced the concept of genetic weakness the alleged consequences of a lack of timely intervention are almost as immutable. The period identified for critical infant brain development has been increasingly scaled back from an initial starting point of 3 years. The 'prime window' for development is currently estimated at 18 months beyond which deficits are portrayed as hard to overcome (as quote from an NHS training course delivered to school staff demonstrates)

> The sad part of the increased knowledge about baby brain development is that it is clear that the way hardwiring consolidates the connections makes it very hard to undo or "rewire" (Solihull Approach – The School Years)

SLIDE 23
SLIDE 24

In early years policy and practice plasticity is presented as a brief, fleeting opportunity for deliverance before the window of opportunity slams shut. While in the US brain development was originally commandeered to revalidate early years support services, the use of neuroscience in the UK it is more often characterised by causal determinism.

SLIDE 25

SLIDE 26

Early intervention has come to occupy an increasingly ideological role in the context of contemporary austerity politics. Its power operates largely through reverberation of explanatory rhetoric, stressed in almost inverse proportion to actual government investment in programs and initiatives. David Cameron has described the realisation of the importance of parenting above socio-economic status as one of the most important findings in a generation. The 'E=MC2 of social science'. Yet funding cuts and payment by results schemes have decimated a previously thriving sector of 'parenting professionals'. Early intervention as a practice is now targeted towards a small minority of very deprived families, while the contentions and distorted science framing the doctrine are drawn on more broadly to lend credence to the responsiblisation of the poor.

Rose and Abi-Rached describe how the brain is now regarded as 'optimizable', with biology viewed as opportunity rather than destiny. But definitions of optimum are replete with value judgements as the requisition of neuroscience to authenticate and legitimise a re-traditionalisation of motherhood demonstrate so effectively. Biological discourses around pregnancy and breastfeeding offer an account of the optimal female brain that confirms the primacy of the traditional family, leaving little scope for notions of gender plasticity.
The turn to the brain in early years policy can also be seen as part of a broader search to establish and impose somatic markers of truth in public life. Biological models are increasingly colonising conceptualisations of social policy evidence with medical research methodology held up as the new gold standard. Randomised controlled trials are now routinely presented as the most reliable way of determining whether a policy works.

Significantly the new public policy 'evidence centres' have been modelled on NICE (The National Institute for Health and Clinical Excellence) which provides guidance and recommendations on the effectiveness of medical treatments and procedures. And in fact early intervention has long been assessed by NICE with RCTs held up as gold standard proof of effectiveness. This medical epistemology is predicated on the idea of pure, inductive data collection with facts emerging to speak for themselves. But as the sociologist, Will Davies argues standards of valuation, in terms of what it might mean to 'work' become more opaque. Instead of transparent utilitarianism, oriented around efficiency, social policy becomes organised around 'vague metaphors of systemic wellness' and in the context of early years notions of 'optimal development'.

In this sense neuroscience as a discourse has a plasticity of its own. It can and has been commandeered and manipulated to support a variety of claims. It has the appeal and authenticity of hard science in an age of uncertainty and has been deliberately employed to exert a formidable influence over public consciousness.