

Is it that they won't do it, or is it that they can't? Executive functioning and children who have been fostered and adopted

The work of the Family Futures Consortium has been increasingly informed by neurodevelopmental psychology and a consideration of how environmental trauma can affect the physiological development of the brain. This has led to the view that the extreme pre- and post-birth experiences of some accommodated children will affect their development in a more complex way than had been hitherto thought, and will require specific remedial therapeutic help.

Richard Lansdown, Alan Burnell and Marion Allen outline how they came to realise that many of the children they see show behaviour patterns consistent with weakness in executive functioning. Data collected on 86 referred children revealed that all had significant difficulties in this area, a finding of considerable clinical importance for people working with such families. The basic concepts underlying executive functioning are outlined and hypotheses on the aetiology of the difficulties are discussed. The article concludes with a discussion of the ways in which the authors' therapeutic approaches have been modified.

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Introduction

The Family Futures Consortium (established in 1997) provides an integrated, multi-disciplinary assessment and treatment service to children who have experienced early trauma, have been accommodated and are now living in adoptive families or with foster carers.

Family Futures' annual appraisal of children and families shows that of the 260 children seen at the Consortium, they had the following factors in their background:

substance abuse:	60 per cent
physical abuse:	55 per cent
emotional abuse:	48 per cent
domestic violence:	47 per cent
sexual abuse:	37 per cent

Two-fifths had three or more risk factors in their background and 85 per cent of these children had been removed from their birth families before six years of age. These figures and the population seen at Family Futures are very similar to the Hadley Centre cohort of children for whom adoption best interest decisions were made (Selwyn *et al*, 2006).

The children seen at Family Futures have all been referred by local authorities or health authorities for a multi-disciplinary assessment and our treatment programme because they are exhibiting attachment difficulties, problems with affect-regulation and difficulties in cognitive functioning. They fall into two main groups. Firstly, there are those for whom these factors are putting their existing family placements at risk of breakdown. The second group comprises those children who are about to be placed or have been placed in new families in situations where the placement agencies see disruption as a possibility.

These statistics and problems highlight the fact that the majority of children seen at Family Futures have experienced significant trauma in the first years of their lives. We now recognise that they have what has been described as Developmental Trauma Disorder (Cook *et al*, 2005). Hence, the rationale for Family Futures' assessments and treatment programme is based on attachment and trauma theory (Schore, 1994; Hughes, 1998; van der Kolk, 2000). However, because of the cognitive problems and learning difficulties that these children experience, our assessments now also incorporate a screening of executive functioning and we have drawn upon the work of theorists such as Dawson and Guare (2004) and Ylvisaker (2003).

Over the past eight years, 260 children have been assessed at Family Futures on a range of measures. Children entering the treatment programme are routinely given a battery of tests that show, among other

things, an average IQ of around 80 for both boys and girls (see Table 1).

Table 1
IQ scores

IQ Score Ranges	Boys	Girls
51-60	5%	8%
61-70	15%	0
71-80	25%	17%
81-90	15%	33%
91-100	15%	25%
101-110	20%	17%
111-120	5%	0

But IQ alone does not fully explain some of the difficulties that children in the programme were displaying, for example sequencing, pattern recognition and perseverance. Initially, the therapy teams' hypothesis was that these difficulties could be related to dyslexia (see Table 2).

However, because of the risk factors of the children in their pre-placement background, we began to wonder whether serious but undiagnosed neurological damage might have been caused.

We speculated on:

- teratogens: pre-birth, high stress environments causing high levels of cortisol to be released in the infants' system causing neuronal damage;
- lack of appropriate stimulation causing the underdevelopment of neural pathways;
- slaps, hits and violent assaults affecting the brain, causing acquired brain injury.

This combination of possible causal factors led us to suspect that more global developmental damage may have been done at a very early age, resulting not only in cognitive difficulties but leading also to attention deficits, hyperactivity and impulsivity. This led in turn to a consideration of executive functioning.

Executive functions

Executive functions have been summarised by Dawson and Guare (2004) as skills that help people decide what activities or tasks to pay attention to and which ones they will choose to do. They are a collection of processes that are responsible for how well a person manages novel or difficult tasks. In essence, they include the ability to plan with a clear aim in mind, using anticipation, the selection of appropriate goals, not relying on habitual responses and using feedback constructively. Put briefly, they refer to self-control.

The Behaviour Rating Inventory of Executive Functions screening questionnaire that we use at Family Futures scores eight domains: inhibit, shifting, emotional control, initiation, working memory, planning and organising, organisation of materials and monitoring (Giola *et al*, 1996). These encompass both behavioural and cognitive elements of problem-solving behaviour – functions normally identified as located in the pre-frontal cortex of the brain.

Typical comments on a child with poor executive functioning are:

Table 2
Reading scores

Boys (Wechsler Objective Reading Dimensions) Average Scores				Girls (Wechsler Objective Reading Dimensions) Average scores			
Reading		Spelling		Reading		Spelling	
Basic reading score	Age equivalent	Basic spelling score	Age equivalent	Basic reading score	Age equivalent	Basic spelling score	Age equivalent
88.11	9.14 yrs	87.88	9.12 yrs	78.16	9.15 yrs	87.6	9.07 yrs

Boys' actual average age: 10.5 yrs

Girls' actual average age: 10.2 yrs

He always rushes at everything. Why doesn't he give himself time to think?

She just doesn't seem to realise that if one approach is wrong, she should try another; she just goes on doing the same thing over and over again.

He never has the right books or the right materials. He seems impervious to criticism.

She's all over the place, always on the go, never seeing an activity through to its end.

He really must learn to concentrate more.

Executive skills begin in infancy and continue to develop throughout adolescence and early adulthood. Much work done so far has concentrated on the association between them and the development of the brain. As Dawson and Guare (2004) have indicated, there is a parallel between development of the brain and development of the child's ability to act, think and feel. This parallel is especially important in understanding how executive skills develop and what areas of the brain are most critical for these skills. Researchers now generally agree that frontal brain systems generally make up the neurological base for the skills in question.

But there is increasing realisation that psychological trauma and stress can affect actual brain development as well. One hypothesis relates to the impact of environmental factors on brain development in pregnancy and the first two years of life. Neurodevelopmental science has shown us that 80 per cent of neural pathways in a baby's developing brain are laid down in the first two years of life (Glaser, 2000). Poor nurturing environments, neglect and substance misuse can greatly impair not only the number of neural connections but also their pattern and structure. Impoverished early environments lead to poor development of left and right brain neural connections with the frontal lobes where the executive functioning areas of the brain are located. A further factor is that high levels of infantile stress and anxiety lead to elevated levels of cortisol. The effect of this is

to weaken and kill off synaptic connections, particularly between the two hemispheres of the brain and the frontal lobes. From this, it is possible to speculate that the impulsive and more primitive levels of functioning are harder to regulate, leading to the type of behaviour seen in children with executive functioning difficulties. Child psychiatrists in the USA are currently considering whether there should be a new diagnostic category that encompasses the impact on child development of early trauma. They are proposing to call this syndrome 'Developmental Trauma Disorder' (van der Kolk, 2005)

Glaser (2000) concluded her review article on child abuse and neglect and the brain as follows (p 110):

There is considerable evidence for changes in brain function in association with child abuse and neglect. The fact that many of these changes are related to aspects of the stress response is not surprising. . . . The neurobiological findings go some considerable way towards explaining the emotional, psychological and behavioural difficulties which are observed in abused and neglected children.

Gerhardt (2004) has summed up recent research, discussing a new paradigm, a systemic approach, the origins of which were in computer science, pointing to the importance of feedback in maintaining systems. Those of us familiar with the work of Bowlby and the notions of family therapy recognise the approach. What is exciting about Gerhardt's book is that it underlines the way in which, at last, several disciplines are coming together to study the relationship between brain and behaviour and, especially, the way that a child's environment can affect brain development.

The focus on the brain does not mean that we should rush off to give all our children brain scans. Although at some stage such an investigation may be of value, impairments in executive functions may be undetectable neuroanatomically and may be solely at a neurochemical or psychological level (Séguin *et al*, 1995).

Séguin and colleagues' paper reported on a follow-up of a group of 177 boys in

Table 3
Boys' BRIEF scores

Domain	Mean teacher rating	Teacher standard deviation	Mean parent rating	Parent standard deviation
<i>Inhibit</i> : the ability to resist acting on impulse and to stop at appropriate times. Example: trouble in waiting for turn, may be fidgety. Has to be closely supervised for much of the time.	66	15.9	69	17.1
<i>Shift</i> : the ability to move freely from one situation or aspect of a problem to another as circumstances demand. Example: failure to move from adding to subtracting in a maths test.	66	16.1	66	15.7
<i>Emotional control</i> : children with difficulties have exaggerated responses to seemingly minor events, making a fuss about nothing.	64	19.4	70	14.9
<i>Initiate</i> : difficulty in getting started at a task. Has to be told to start work, even when apparently willing to do so. 'Lies around doing nothing.'	58	13.4	65	10.4
<i>Working memory</i> : the capacity to hold information in mind for the purpose of completing a task, essential for mental arithmetic. Poor working memory has often been associated with reading difficulty. Children may not be able to stay on the same topic when talking.	64	14.5	69	12.9
<i>Plan/organise</i> : the ability to anticipate future events, to set goals and to develop steps ahead of time to reach them. Does not see that one thing leads to another. May lead to doing badly in exams even when the material has been learnt.	63	14.9	66	11.9
<i>Organisation of materials</i> : the orderliness of work, play and storage spaces. Loses glasses, lunch box, books, notes; room and desk very untidy.	58	15.5	61	11.4
<i>Monitor</i> : the child's work checking habits, whether the child keeps track of what has been said or done. This applies to school work and also to the monitoring of the effect that one has on other people.	61	13.8	69	15.6

the USA, from six to 12 years of age, and noted that tests of executive function had a strong association with aggressive behaviour, even when social factors were controlled for. Work in the United States by Mezzacappa, Kindlon and Earls (2001) has confirmed a link between child abuse and executive function. They looked at performance tasks completed by 126 boys aged six to 16 and found that those with a history of physical or sexual abuse were significantly less competent in executive functions related to a realisation of the consequences of their actions.

The experience of Family Futures

This literature on executive functioning seemed to confirm our hypothesis on neurological damage and we began systematically to consider this aspect of behaviour in our initial assessment.

To some extent much information can be gained about executive functioning from observation but a formal approach is to use a rating scale: *The Behaviour Rating Inventory of Executive Function (BRIEF)*, published in the USA in 1996 (Giola *et al.*, 1996). A parent and/or a teacher complete the scale from their knowledge of the child and several

Table 4
Girls' BRIEF scores
Domain

Domain	Mean teacher rating	Teacher standard deviation	Mean parent rating	Parent standard deviation
<i>Inhibit</i> : the ability to resist acting on impulse and to stop at appropriate times. Example: trouble in waiting for turn, may be fidgety. Has to be closely supervised for much of the time.	78	24.8	74	17.6
<i>Shift</i> : the ability to move freely from one situation or aspect of a problem to another as circumstances demand. Example: failure to move from adding to subtracting in a maths test.	70	19	65	14.6
<i>Emotional control</i> : children with difficulties have exaggerated responses to seemingly minor events, making a fuss about nothing	76	21.2	68	12.7
<i>Initiate</i> : difficulty in getting started at a task. Has to be told to start work, even when apparently willing to do so. 'Lies around doing nothing.'	68	13.5	67	14.4
<i>Working memory</i> : the capacity to hold information in mind for the purpose of completing a task, essential for mental arithmetic. Poor working memory has often been associated with reading difficulty. Children may not be able to stay on the same topic when talking.	71	17.5	71	15.7
<i>Plan/organise</i> : the ability to anticipate future events, to set goals and to develop steps ahead of time to reach them. Does not see that one thing leads to another. May lead to doing badly in exams even when the material has been learnt.	68	14.7	71	14.4
<i>Organisation of materials</i> : the orderliness of work, play and storage spaces. Loses glasses, lunch box, books, notes, room and desk very untidy.	68	23.7	64	19.3
<i>Monitor</i> : the child's work checking habits, whether the child keeps track of what has been said or done. This applies to school work and also to the monitoring of the effect that one has on other people.	76	19.9	72	13.1

domains are rated. A score of 65 or over is regarded as being a cause for concern, one of 90 or over of extreme concern.

Over the past two years, Family Futures has included the BRIEF questionnaire as part of the routine psychological assessment of children seen. An analysis of the 86 children, aged six to 18, showed that every one was rated by a teacher or parent as having executive functioning difficulties in the clinically worrying range (see Tables 3 & 4). The results obtained thus supported our view of a link between early trauma and executive functioning

difficulties, with profound implications for anyone working in the field of fostering and adoption.

General implications

Our knowledge of executive functioning skills in the children with whom we work at Family Futures has led us to think systematically when doing assessments and in the therapy programme.

In a recent article reviewing cognitive rehabilitation for children with acquired brain injury, Limond and Leeke (2005) refer to the literature which suggests that

children with executive functioning difficulties as they grow older 'grow into deficit'. This rather sad notion is congruent with our experience at Family Futures where cognitive difficulties are less obvious in younger children, ie 0-5, but these cognitive and memory difficulties become more noticeable to the trained eye once they start school. As academic requirements increase, the child's inability to engage successfully in structured school activities becomes more noticeable. Unless these difficulties are identified and addressed, these children get 'left behind' and a growing gulf develops between them and their peers. In our experience this is in part responsible for the behavioural problems that can emerge in the classroom and compounds the low self-esteem that these children have as a result of early rejection and trauma. It is for this reason that we believe that this whole area of executive functioning should be scrutinised by not only teachers but also all professionals working with accommodated and adopted children.

Implications for therapy

Our awareness of executive functioning difficulties in children who are fostered or adopted has had clear implications for the way we now assess and work with children.

The need to assess executive functioning skills in all children who are in permanent placements

In all our assessments of children, we routinely screen for executive functioning difficulties using the BRIEF. For children who score in the clinically worrying range on the BRIEF and who proceed to the treatment programme, our educational psychologist carries out formal testing of executive functioning skills (for children over eight years of age). Even if we are not absolutely sure about the nature of the connection between early childhood trauma and executive functioning skills, there is enough evidence of a connection to suggest we should be assessing executive functioning in order to offer appropriate help to children who score in the clinically worrying range.

A 'parenting strategies' approach that acknowledges developmental trauma and executive functioning difficulties

Five years ago the focus of our work was very much on attachment styles. The early literature on reactive attachment disorder in children highlighted the oppositional nature of children with attachment difficulties and their lack of trust in adults. Children with attachment difficulties were described as attempting to control their adults and the environment and were highly self-reliant (Randolph, 1994; Keck and Kupecky, 1998). The DSM-IV Reactive Attachment Disorder category was helpful in linking trauma in early childhood with attachment difficulties. Characteristic of children with this diagnosis was what was seen as their 'oppositional behaviour'. Therapeutic approaches and parenting strategies developed and practised in the USA at that time focused on that aspect (Cline and Fay, 1990; Thomas, 1997; Keck and Kupecky, 1998).

Alongside attachment-based therapies, parenting strategies were developed (Cline and Fay, 1990; Thomas, 1997). These schools of parenting strategies, which are still in vogue today, focus on control and oppositional behaviour. They constitute what could be called the 'won't do' school of parenting strategies, an approach designed to manage and manipulate the child's oppositional responses to adult instructions. This style is not collaborative and focuses on the power relationship between adults and children.

Our awareness of executive functioning difficulties has moved us away from these types of strategies to ones that recognise the fact that the child *can't do* rather than *won't do* tasks that involve frontal lobe processing of information. This approach is collaborative and involves helping children to self-manage problem-solving. The recognition that children in our therapy programme have not only attachment difficulties and unresolved early trauma but also executive functioning difficulties has required us to rethink our approach to assessment, parenting strategies, therapy and environmental management.

There is now a growing literature and

comprehensive range of strategies designed and developed to help children manage their own behaviour (Ylvisaker, 2003; Dawson and Guare, 2004). Parents, teachers and peers become mentors rather than managers of the children's cognitive and behavioural difficulties. In essence, it is a collaborative approach that is non-competitive and designed to help children develop the skills they need to cope and to learn in novel problem-solving environments at home or at school. To give some examples:

Ylvisaker (2003), a speech and language therapist working with children with acquired brain damage, has developed programmes for helping children help themselves to cope with executive functioning difficulties. Each of the eight domains has its own types of strategies formulated to address difficulties in that domain. For instance, children with 'shift' difficulties, who have a tendency to perseverate, are helped to change from one activity or environment to another by the systematic application of ending rituals. The child might be given a two-minute warning by a parent or a teacher that an activity is about to end and a ritual for ending that activity, eg finishing the sum they are doing, putting their pencils in their pencil case and sitting still for 30 seconds and breathing deeply in order to remain calm. If the child has working memory problems this ending ritual might have to be written down or portrayed pictorially as a sequence of events leading to a change. This pictorial aide-memoir would be with the child and referred to by the parent or teacher at every change in the hope that, over time, the child will internalise the ritual and no longer require external-prompting.

A further example of strategies for children with working memory difficulties is the use of a mantra that the child uses in any situation where there is choice. It takes the form of the question, 'What is the one big thing I need to do next?' This strategy helps children select from a range of options the one thing they should focus their working memory on.

Developmental reparenting

Recent neurological and psycho-biological theory and research (Schore, 1994) suggests that the plasticity of the brain of children with normal development remains throughout childhood into adulthood, resulting in the potential for growth, change and development in the neural structure of the brain. In addition, positive outcomes are suggested by cognitive rehabilitation programmes for children with 'acquired brain injury', where the physical injury to the brain is more profound (Limond and Leeke, 2005).

At Family Futures, our therapy programme has embraced executive functioning and integrated these interventions with those we employ to address the emotional and psychological damage caused by early trauma. We have combined these two approaches in a model we call 'Developmental Re-parenting', where parents and carers are encouraged to go back with their child to earlier developmental stages. Mary Dozier in the USA has called this approach an 'Attachment and Biobehavioural Catch-up Interventional Programme' (Dozier and Manni, 2002). This appeared successful for children under the age of 20 months in foster care. The credibility of this approach has been recently enhanced by yet more neuroscientific research that has identified 'mirror-neurons' as the biological roots of empathy and modelling (Gallese, 2003). The innate capacity of the brain to mimic, model and empathise suggests that going back in order to go forward in child-parent relationships does have a positive neurodevelopmental impact. As the child mirrors and models their new parent or carer's interactions, new synaptic connections are made and new neural pathways are laid down.

Integrating home, school and therapy interventions

A further step has been the recruitment of a teacher to work with the therapy teams, parents and schools to co-ordinate a more community-based implementation of the attachment and executive functioning programmes. Her role is to explain to schools the significance of the executive

functioning scores to the classroom teacher, in the hope that teachers and the school as a whole will embrace this approach in their work with the children with whom we are engaged.

A school visit usually takes place before the educational psychologist's assessment in order to inform the psychologist of the child's behaviour and achievement within the current educational setting. This initial visit usually includes a classroom observation and a meeting with the class teacher, Special Educational Needs Co-ordinator or head teacher. At this meeting, information is gathered about the child at school and information provided to the school staff about attachment issues and executive functioning. Feedback of the BRIEF results is given and relevant literature is left with the teachers, as well as a list of relevant reading.

Depending on the individual case, the need and frequency of school visits and the intensity of support required are decided and included within the proposal. For the average case, this would entail termly school visits and telephone or email support as frequently as required.

Ideas for class-wide strategies to support the development of executive skills can be given to the teachers as well as some suggestions for individual work to address the specific difficulties experienced by the child in question.

Strategies can be developed by considering the pupil's emotional development, with particular reference to the development of the executive functions. Many of the children who attend Family Futures are functioning at a level below that of their peers and need an external regulator to guide and support them.

For many of the children, the executive functioning difficulties with behaviour inhibition and emotional control are the areas that are most disrupting to the education of this child as well as that of other pupils in the class. Sometimes, these children are taught outside the class setting as they are unable to manage the organisation and structure of a class lesson. For those children who have the academic potential to manage, this can be frustrating and assisting them to join the

class can greatly increase their self-esteem. Changing a child's target from an academic achievement to a behaviour-inhibition focus can alleviate pressure from the teacher and lessen teacher-expectation related stress. The use of graduated timers (such as five-minute, ten-minute or 15-minute egg-timers) to build up the length of time spent within the lesson, along with empathic and supportive phraseology, can produce successful results.

Behaviour inhibition and emotional control problems often manifest themselves in less formal situations, eg playtimes, lunchtimes, tidying up times, free choice and more informal sessions. Cognitive anger-management strategies using visual metaphors alongside role-play practices can help. For those pupils who are not ready for this, we suggest alternative opportunities, ensuring these are seen as preventive measures rather than punitive sanctions. Playtime 'jobs' and responsibilities, for instance, or supervised indoor activities can be successful.

For those pupils who have trouble with organisation, we have developed visual prompt sheets. We encourage teachers and parents to provide timetables for the day and to develop warnings for out-of-routine occurrences, such as supply teachers. These children need to be taught how to keep their desk and working space tidy, with continuing guidance provided. They can be assisted by the provision of organisational aids, such as transparent pencil cases and named pencils, and specific procedures, such as providing two sets of books – one for home and one for school.

It is important for teachers to recognise those pupils whose working memory is less developed than that of peers so that expectations for following instructions and within such subjects as numeracy are adapted accordingly.

Pupils who experience 'shift' difficulties cannot manage transitions between tasks or lessons. They may find the movement from home to the car, to the playground and then to the classroom difficult. They may find it especially hard switching off from events at playtime to

focus on the next lesson. These 'shift' difficulties can be supported by providing consistent warning routines and organised starting routines. Some children benefit from entering the classroom earlier than others to allow them to begin school in a calmer environment. Children who experience difficulties with 'shift' may miss vital information at the start and ending of lessons, often vitally important times when homework is being set or discussed, learning objectives shared and when plenary sessions summarise the learning that has taken place during the lesson. Adult support at the beginning and end of lessons addresses problems with 'shift' and 'initiate' (see Tables 3 & 4). These children need an external modulator to exemplify starting and finishing routines. If these are supported by a mantra, the child will have the opportunity to internalise this, giving a tactic for him or her to apply when working independently.

Children who experience problems starting tasks or who have difficulty absorbing instructions are sometimes wrongly identified as lazy. They may not be able to process information and instructions as well as their peers and their lack of self-esteem prevents them from asking for help. Supporting these children at the beginning of the task, giving instructions in short steps and ensuring that instructions are kept concise and simple are essential.

Being faced with that blank piece of paper or a project to complete may well add to the children's stress. It may be helpful to provide them with planning sheets or worksheets that break the task down into separate sections. Teaching idea-generating methods, such as mind-mapping and guiding them through these before a new task, can help them to focus. Within the secondary school environment, in particular, these children need to be monitored carefully when producing coursework as they are often unable to pace their own work and can easily miss targets. They will need long-term work and projects broken into smaller sections, to be checked by the teacher at regular intervals.

Self-evaluation is now an integral part of the National Curriculum and many

classes use self-monitoring techniques such as 'thumbs up, midway and down', grading own work, smiley face sheets and traffic light systems. Children who have suffered early developmental trauma often experience great depths of shame and find praise difficult to manage. They will need further support with their self-monitoring, with the teacher validating their beliefs but using carefully worded specific praise to express his or her evaluation of the pupil's work or behaviour.

Alongside the strategies given to schools, ideas for phraseology that is empathic and supportive are suggested so that the child's feelings about his or her difficulties are validated.

Conclusion

We now believe that repeated childhood trauma leads not only to attachment difficulties in babies and children but also difficulties with cognitive, affective integration and memory development and organisation. This explains why many children among those adopted today present a complex constellation of difficult and challenging behaviour, at home, school and in the community. We would argue that the common source of both these difficulties and of their solutions lies in the inter-subjective experience of mother and child pre and post birth. Therefore the focus of any help for adopted and fostered children and their carers and parents needs to support the development of a positive inter-subjective experience that will help the child develop the ability to regulate their affective experience and, over time, re-programme their neurological patterns in an integrated way that will enable them to cope better in complex and changing environments that they face daily. We believe that our awareness of executive functioning difficulties, and a bespoke strategies programme and mentoring for the child, have a positive impact on the families we work with at Family Futures.

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