

## Developing Young Minds: Innovative Education

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When I was teaching I became particularly interested in the crucial role in the capacity to learn that successful negotiation of adolescence played for some very able young people. The adolescent brain in particular has been described as ‘a work in progress’; adolescence marks a distinct developmental stage ‘second only to the neonatal period in terms of both rapid biopsychosocial growth as well as changing environmental characteristics and demands’ (Schoore 2003 b: 297).

- What insights from affective neuroscience may help to refine our approach to personalised learning?
- What are the challenges that adolescence in particular presents to the individual learner and those who would assist the learning process?

### 1. A personalised learning environment is key

The early development of mind is dependent on each individual’s experiences of relating to others. In good enough circumstances caregivers establish a warm, empathic way of being with a child which results in a secure attachment, one from which the growing child steps confidently into the wider world. The very rapid form of learning, that occurs through the holding and smiling and vocal exchanges of the first months of life, ‘irreversibly stamps early experience upon the developing nervous system and mediates attachment bond formation’ (Schoore 2003a: 277).

Relating to another, an early right hemisphere activity, stimulates the growth of the centres for speech and language in the later developing left hemisphere of the brain, leading ultimately to the development of the child’s own mind. In this respect the interaction with caregivers literally ‘grows’ the baby’s brain. Research conducted on infants shows that the brain tissue where language is localized begins to develop as early as three months of age.

As the right brain is on line from birth it is a key player in the early learning process. Right brain learning is primarily relational: successful learning will inevitably be personalised. Patterns of expectation of how relationships will be, begin to build in the young child’s brain; these patterns are stored in implicit or emotional memory and

have a lasting effect on the way a young person begins to expect learning interactions with another, indeed all others, to be. Research tells us that a young person's brain and mind will owe a huge amount to the infant's and growing child's experiences of nurture, with mother, with father and with significant others, and later with all in the world of school.

As the mind is fundamentally associative and its development based on psychological identification, these early patterns of relating are inevitably transferred on to significant others in the outside world. The reception class teacher may hardly recognise herself in the eyes of a frightened or angry child who is reacting to her so badly on the basis of earlier traumatic experience. On the other hand the boy or girl whose early experience has led to secure attachments will go forth confidently into the world, aware of how to be with others. In other words, children mirror in the important new relationships that they make at school, ways of being with others and ways of expecting others to be, that are already firmly established inside.

Learning is accelerated through healthy interaction with another mind: this provides a secure base from which further learning takes place. When a carer is unable to respond positively to a baby or responds negatively or unpredictably, then the baby will be affected throughout its whole mind-brain-body being. As they grow-up such children may develop one of three problematic responses.

- The avoidant, 'I must avoid people's anger by avoiding knowledge of my own difficult feelings, pushing them down, switching them off'. In school may lead to a distant, switched-off attitude. As such it leads to a defended attitude towards the adult world and will interfere with learning that inevitably requires co-operation with others.
- The ambivalent, 'Sometimes people are OK sometimes not, I must watch carefully and modify my mood and feelings to theirs'. In adolescence some of these young people become distant and avoid others, some become over-anxious and clingy, over-eager to please, unable to think independently, in their efforts to solve their dilemma.

- The disorganized, 'People are so unpredictable I just don't know what to do for the best, I'm afraid all the time, sometimes I manage to pretend I am not, but it's there deep-down all the time'. This last group will find it most difficult to relax their guard enough to be able to actually learn.

Without the provision of a different experience of relating these damaging patterns of attachment become long lasting. If a different, more consistent experience of healthy relating is provided then young people may be able to move to an attachment style that I have come to think of as 'learned secure'. This, I believe, is what then makes accelerated learning a possibility for these young people. I would emphasise that problematic attachment styles are not the problem of a small minority of our young people. Holmes suggests that 'in average populations about one-fifth of children are avoidant, one-sixth ambivalent, and one in twenty disorganized' in their attachment style (Holmes 1996: 7-8).

## **2. Emotional competence is essential for achievement**

Emotional competence, is the ability to experience, recognise our emotions and control our expression of them appropriately. Goleman comments 'emotional intelligence is a master aptitude, a capacity that profoundly affects all other abilities, either facilitating or interfering with them' (Goleman, Emotional Intelligence: 80). Emotional executive competence facilitates effective learning.

It is not only the pupil's affect that requires self-regulation: teachers are well aware that certain pupils may get 'under their skin' and evoke emotional responses that are difficult to control. Education concerning the neuroscience of the learning process, including inter-subjective aspects of attachment and emotional competence, should therefore be part of initial teacher training as well as part of continuing professional development.

In Next Practice in Resourcing Personalisation there will be an emphasis on the assessment of each young person's individual learning needs and strengths. This stands in strong contrast to the old 'red pen approach' that underlined only the young person's mistakes, thus fixing those neural pathways ever more firmly, alongside sinking the failing pupil into feelings of shame which ensured further failure.

### **3. Utilising the plasticity and connectivity of the brain-mind effectively enables accelerated achievement**

Throughout life, the learning process is rather like a double helix where left brain and right brain processes intertwine; 'In most people, verbal, conscious and serial information processing takes place in the left hemisphere, while unconscious, nonverbal and emotional information processing mainly takes place in the right hemisphere' (Larsen et al., 2003, p. 543, cited in Schore 2006). Canli (2004, p.1118) cites a number of studies that demonstrate that 'the connectivity between different brain regions can vary as a function of attention' so the engagement of the learner, fundamental to the concept of personalised learning, is crucial. Cozolino concludes that it is 'the blending of the strengths of the right and left hemisphere [that] allows for the maximum integration of our cognitive and emotional experience with our inner and outer worlds' (Cozolino 2002: 115). As innovators we need to reconsider the predominantly cognitive left-brain approach that has characterized some teaching and learning styles.

In adolescence, faster and more effective communication is made possible in the brain as the amount of myelinated neurons (most effective transmitters) increases. (Paus *et al* 1999). The development of emotional competence at this stage is very uneven with emotional experience outpacing executive control. This is because the limbic areas, concerned with emotional responses, mature earlier than the frontal lobes, concerned with judgment and reasoning. Only slowly is the adolescent able to be aware of the effects of actions on others and to be able to inhibit impulsive behaviours.

Relational trauma in both early years and in adolescence affects healthy brain development. Unresolved conflicts from early years challenge the adolescent who is struggling to develop an adequate sense of identity, a sense of self as separate yet in healthy relation to others. For children who have experienced early relational trauma this stage of life can be overwhelming, leading to an inability to develop or sustain frontal lobe regulation. This inability to self-regulate reveals itself in impulsive, sometimes aggressive or fearful behaviours. Where meaningful relationships with adults are absent, or the adults too distant or switched off emotionally, rage, despair and finally switched-off reactions may result in the young person as he or she

struggles with the developmental pressures that accompany the teenage years. As the frontal cortex, responsible for reasoning and judgment, lags behind the limbic system in development, the availability of a good enough (not perfect) parent's or teacher's knowledge of when and how to say 'no' may be of crucial importance in helping a young person to develop the internal ability to control impulsive behaviours.

The plasticity of the brain that holds out the possibility of learning, indeed of the accelerated learning envisaged in these projects, sadly is sometimes the downfall of the adolescent. The brain as easily becomes programmed to patterns of abuse as to achievement. Eating disorders, drug abuse, self-harming, cutting and suicidal behaviours may emerge at this stage. Plasticity, the power of the brain's reward system, and the as yet incomplete development of the capacity of the frontal lobes for inhibiting impulsive action means that vulnerable teenagers, who have had a poor start emotionally are particularly at risk.

## **Conclusion**

**Next Practice field trials present a unique opportunity to explore how we may capitalize on the plasticity and openness to change of the adolescent in order to accelerate achievement.**

Solms and Turnbull suggest that affectively focused interactions alter the frontal lobes of the brain in a way that is detectable by functional imaging studies (Solms & Turnbull 2002: 288). Cozolino argues the value of the affect-regulating, relational aspects of experience that forge new neural pathways through emotional connection (Cozolino 2002). The unique interactive experience between teacher and individual learner that the field trials emphasise is crucial for a young person to come most fully into mind.

## **So how do we evaluate innovation in these field trials?**

- How does your field trial recognise and address individual differences in learning and attachment style in order to engage the learner effectively?
- In what ways does your particular trial foster emotional competence in learners in order to accelerate learning?

- How are you seeking to capitalize on the plasticity of the adolescent mind-brain? In what ways does your field trial encourage the blending of the strengths of the right and left hemisphere?

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