A few thoughts about the mind, the brain, and a child with early deprivation

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Abstract: Infant brain research is having an increasing impact on child psychotherapy and our understanding of the neurobiological effects of trauma and neglect. This paper outlines the ‘experience-dependent’ nature of brain development in infancy and the concept of critical periods in such development. The effects of deprivation on child development are illustrated and case material from a child who was institutionalized during his second year is used as a basis for posing questions about the nature of the mind and the brain. In spite of his deprivation, he was able to communicate imaginatively. Schore’s proposal for the use of early interventions is put forward to counter discouragement that can be engendered by work with severely deprived children.

Key words: amygdala, cerebral cortex, neurobiology, projective identification, synapses.

The baby’s brain

At birth the brain is the most undifferentiated of any ‘organ’ in the baby’s body. As development unfolds, neural pathways are created by means of synapses that open them up. Millions of neurons must fire in unison to produce the most trifling thought. In theory, each time a particular interconnected group of neurons fires together it gives rise to the same fragment of thought, feeling or unconscious brain function, but in fact the brain is too fluid for an identical pattern of activity to arise and what actually happens is that similar but subtly mutated firing patterns occur. Waves of activity, each with a characteristic pattern, are produced moment by moment as the brain reacts to outside stimuli. This activity in turn creates a constantly changing internal environment, which the brain then reacts to as well. This creates a feedback loop that ensures constant change (Carter 1998, p. 19).

Synaptic activity allows for the creation of component parts of the infant’s brain that become differentiated and carry out such functions as attention, perception, memory and emotional regulation. But it is the undifferentiated, floppy, unknowing quality of babies that gives adults the impression that babies are not affected by what goes on around them. I imagine that many of
us have worked with parents who are surprised by the idea that a family event in the past could have had any impact on their baby.

But babies are taking in information all the time. The creation of neural connections, their maintenance and elaboration, often require that they be activated in a process called ‘experience-dependent’ development. This means that a baby needs another person to interact with in order to stimulate the development of its brain. The brain is thought to be a self-organizing system, and the coherence of its organizing capacity is stimulated by mutual enjoyment of play between mother and baby. In this pleasurable state, their right brains are entrained in a way that amplifies energy flow ‘that allows for a coherence of organization that sustains more complex states within both the infant’s and the mother’s right brains. In this manner, ‘the self-organization of the developing brain occurs in the context of a relationship with another self, another brain’ (Schore 1994, 2001a, p. 25).

This kind of experience activates specific neuronal connections and allows for the creation of new synapses and the strengthening of existing ones. Far more connections are made than are actually needed, and those that are little used are discarded in a process called pruning. Myelination is the formation of a sheath around nerve fibres and now it is known that the critical period for myelination of brain pathways is between birth and 18 months.

The differentiation of the brain during the early years of life is thus dependent upon both genetic information and the proper stimulation by another human being. It is for this reason that the early years of life are the most crucial for the individual to receive the kinds of experience that enable proper development to occur, because it is during the first two years that the basic circuits of the brain are becoming established. Certain windows of time are critical for the creation of brain pathways for attention, perception, memory, motor control, modulation of emotion, the capacity to form relationships and language. These pathways are created in response to the stimulation that takes place within the relationship between baby and caregiver, known as the experience-dependent or ‘use-dependent’ development of the brain (Orford 1998).

It is the genes that cause the production of the proteins necessary for neuronal growth and synapse formation. Genes do not exist in a vacuum but require experience for their expression; that is, genes are activated by experience. This view allows us to see how the heated arguments about ‘nature versus nurture’ or ‘heredity versus experience’ do little to further our understanding of the biological reality that experience directly shapes brain structure via the activation of genes (Siegel 1998, p. 3).

The concept of critical periods

Neurobiologists have identified points in the infant’s development that are critical for the establishment of particular functions. With regard to some capacities, this has been known for some years. Susan Greenfield (1997) cites the
case of an Italian boy whose eye functioning was defective, although there appeared to be no physical cause. When a history was taken, it transpired that his eye had been covered during infancy due to an external abrasion, and this had caused impairment to the establishment of the neural pathways governing sight at a critical point in the development of his brain. Further work in progress suggests that it is not just physical functioning that is established in this way, but also how the baby is accustomed to relate to his environment, whether he is able to feel secure and trusting in his relationships, or whether he is anxious or turns away from other people. Using Bowlby’s attachment theory, it has been convincingly shown that babies who relate securely at one year continue to manage their relationships confidently, for example when they first go to school. Those who are untrusting or disorganized as babies continue to have difficulties in going to school, and also in their relationships in their late school years (Orford 1998, pp. 4–5).

A case study

Writing in the Child Psychotherapy Trust Review, Eileen Orford, a Kleinian child psychotherapist, gives the following illustration. Jennifer, aged 18 months, had recently been introduced to her cousin Toby, aged two and a quarter. An only child, she was not used to being with other children. A range of attractive toys had been arranged for them at their grandparents’ house. Toby was more mobile than Jennifer and quickly grabbed the most colourful toys. Jennifer got very cross and threw herself at Toby, kicking, biting and pulling his hair. Her mother was quite surprised by this display of temper, but quietly helped her to calm down. She expressed her feeling that this behaviour was not acceptable, while showing that she realized how upsetting it was and prevailing on Toby to relinquish one of the toys that Jennifer wanted (Orford 1998).

Primitive emotion, the amygdala and the cerebral cortex

Children have far more emotional outbursts than adults do because the signals from the frontal cortex, the ‘higher’ brain, are relatively weak and diffuse. The frontal lobes of the cerebral cortex deal with the most integrated brain functions such as thinking, conceptualizing and planning as well as the conscious appreciation of emotion. Infants cannot control their emotions because the axons that carry signals in a hierarchical system, down from the cortex to the limbic system, have yet to grow. The cells in the prefrontal lobe, where rational processing of emotion takes place, do not mature fully until adulthood. The amygdala, which is located in the limbic system in the lower middle area of the brain, is more or less mature at birth and thus capable of full activity. The young brain is therefore essentially unbalanced because the immature cortex is not yet able to control the impulses from the powerful amygdala, which is why we see very young children being overwhelmed by emotional storms.
The amygdala is the brain’s alarm system, the central generator of states of mind that evolved to aid survival under threat. It generates all three basic survival strategies: fight, flight and appeasement, and allows a swift transition from one to another. The amygdala receives emotional stimuli first via a fast track that produces an almost instantaneous automatic response. In extreme situations it can induce a freeze response. In an adult, the information reaches the frontal cortex a quarter of a second later, where it is placed in context, and a rational plan of action is conceived to cope with it. To give a simple example, a sudden loud noise makes a toddler flee to its mother, while she will look up to find the source of the noise and, as well as providing comfort and reassurance to the child, will see what she can do about it.

Maturity of the cortex can be accelerated by use. Children who are encouraged to exhibit self-control are likely to become more emotionally continent than those whose tantrums are allowed full rein. This is because, in general, constantly stimulating a particular group of brain cells like those required to inhibit the amygdala makes them more sensitive and thus more easy to activate in future. By the same token, children who rarely activate the emotional control centre in their brains may grow up to be poorly controlled adults because the necessary brain equipment was not nourished during the most critical stage of development (Carter 1998, p. 90).

To return to two-year-old Jennifer and the toys: by intervening in the way that she did, her mother was providing a clear model of how Jennifer should behave. She was also providing Jennifer with some understanding of herself, enabling her to think about how she felt by giving her anger a name and relating it to what she did. Such insight is important if the child is to be able to control her own behaviour. Essential in this interaction is the mother’s capacity to empathize with the little girl’s anger, to acknowledge that there was a reason for it, and to help her to manage it. Infant observation shows that it is this kind of mind to mind contact that infants seek as being essential to their mental and emotional growth. In troublesome older children it is often called ‘attention seeking behaviour’ but in my view such children are still trying to get what they need and have not had. Without this kind of containment, children can be overwhelmed by primitive emotion arising from the limbic brain and quite unable to help themselves to manage its potentially devastating effects (Orford 1998).

The Rumanian orphans

The following is an illustration of how lack of early mothering results in a gross deficit in brain-mind-emotional development. It concerns the children from Rumanian orphanages who were adopted by Western families in the late 1980s. Until they were adopted the children had been given little or no stimulation, no individual attention from adults and nothing that could be construed as normal love. Despite being doted on in their adoptive homes,
many of them have grown up with profound social and emotional problems. One mother, speaking of her ten-year-old adopted daughter, said that Nicola had no idea what love was. She did not seem to connect to her adoptive parents any more than to anyone else and she could not learn to show concern for other people. For example, she never flushed the lavatory when she had used it. Although she was repeatedly told to do so, she just could not be bothered. Her mother felt that it was not that Nicola wanted to upset them but rather that she did not seem to take on board that they existed.

Harry Chugani, of the Children’s Hospital in Michigan, has scanned the brains of some of these children and found that nearly all of them show distinct functional eccentricities in various areas connected with emotion. Chugani tells us that there is just a short window of time during development when children have to be emotionally stimulated if they are to feel appropriate emotions in later life. These children missed that crucial experience and their brains carry the evidence (Carter 1998, p. 91).

Introduction to psychotherapy with Jay

It is only in retrospect that I have wondered about brain research in relation to the work that I did with Jay and my comments move uneasily between a familiar, psychodynamic view of the material and a few speculations about it from an unfamiliar, neurobiological point of view.

Jay was 13 when he started psychotherapy with me but he looked more like a 10-year-old. He was short, slight, with olive skin, straight black hair and bright eyes and his clothes were a shambles, one shoe coming undone, his shirt-tail half out and his trousers loose around his waist. From his box of toys he used the animals throughout the therapy, leaving everything else aside. During the first few sessions, he lined up all the animals in order of height. He took great pains with this, but as I watched and tried to understand what he wanted to convey to me, I felt only tedium. Starting again, he lined them up in order of weight, from the elephant down to the little piglets. Then he lined them all up in order of fierceness. Struggling with my boredom, I slowly arrived at the idea that this was a depiction of the two-dimensional way that he experienced the circumstances of his life. He was attending a series of hospital appointments with a consultant because of his failure to grow, and hormone treatment was being considered. A situation full of potential for fear, shame and anxiety about becoming an adult was being rendered simply as the comparison of height, devoid of all emotional significance. The same was true of his thoughts about his position in the family, his age, height and weight in comparison with the other children. As for fierceness, he was complained of by his siblings for temper and behaving badly, sometimes violently, towards their mother. When it came to comparisons of schoolwork, he stood near the bottom of the class.
The brain and the mind

Reading about brain development, I feel myself to be in an in-between area, where as a psychotherapist I am groping with new ideas that have an impact on our thinking about the psychic realm, the realm of feeling and image, dream and fantasy, communication and the relationship between two minds. I have heard a scientist declare on television that when they can build a computer modelled exactly on the human brain, they will have created a mind. I find the idea appalling, but also intrinsically unbelievable. At a stroke it wipes out all our experience of soul, spirit, psyche, mind, the inner world, religion, poetry, music and the arts and what Jung called the Self. Nevertheless, there seem to be a lot of people who embrace the idea that the mind is nothing but the total functioning of the brain. However, Horace Barlow, a Research Professor at Cambridge, tells us that current research conducted by a reductionist method can tell us about extracellular and intracellular processes but not about subjective experience or the survival value of a gene. Research on isolated brain mechanisms, or reductionism, will not lead us to understand interactions between humans and their crucial role in moulding society. Nonetheless it may provide the best way forward (Carter 1998, p. 18).

Brain research is still in its infancy, yet as I read more about it, I begin to wonder if the mind as the centre of personality is actually the individual way that the brain functions in any one person as it arises from a combination of genetic endowment and interaction with the environment. There is fascinating work being done in brain research and neuroendocrinology that is helping psychotherapists to understand which areas of their patients’ difficulties will remain lifelong patterns, which can be modified, and what emotional suffering they can hope to ameliorate. Work is being done in the field of child psychotherapy to assimilate infant psychological and brain research in ways that can sometimes mean radical modifications of psychoanalytic theory. In her paper about an Asperger child, Judy Shuttleworth writes:

It is now beginning to be possible to correlate clinical descriptions of the way in which the impact of external objects shape the mind of the child, through the phantasies of relatedness to which they give rise, with accounts of the ways in which these emotional experiences with external objects physically structure the developing brain ... With the recent developments in neuroscience, accounts of body/brain/mind linkages (Schore 1994) are now being added to the more familiar nexus of experience/phantasy/mind. This raises important questions about the particular scope (and limitations) of existing psychoanalytic accounts of mental causality. These questions come to have a particular force when we find ourselves working with a patient where there is reason to think their brain is, or may be, in some way unusual, such that it may be directly giving rise to, or contributing to, unusual experiences.

(Shuttleworth 1999, pp. 240–1)

In relation to Jay, I cannot begin to differentiate what is brain and what is mind or psyche, nor even assess whether it is any longer viable to do so. But I should like to offer some psychodynamically informed observations of his play
and how he could convey meaning in a way that seems astonishing in a child with such severe early deprivation. And this I currently understand as an operation of his mind.

Meaningful play

At the time of Jay’s therapy, my patients’ boxes of toys were kept locked in a cupboard in my room, and some children, in spite of having their own box to play with, tried to force their way into this cupboard. They were jealous of the other children that I saw, wanting to get rid of them and take exclusive possession of their toys and their therapist, who had taken on the unconscious significance of their mother in the transference. I had no difficulty remembering to get out the right box for the right child before each session began, so it was with dismay that, at the beginning of his fourth session, I saw that I had put out another child’s box for Jay. I apologized and quickly changed it for his own, but he said it didn’t matter, shrugged it off instantly and turned to the animals. He put all the black animals in rows on one side and the white animals facing them on the other side and played chess with them. They were turned into ciphers to be manipulated according to the rules of the game, with no animal liveliness and no trace of activity that would express feelings on Jay’s behalf about the experience of being confused with another child. Following this incident, each week the animals were lined up in alphabetical order, which I found a tedious exercise. Occasionally he tossed up and dropped on my desk a pair of piglets as if they were a pair of dice. He had marked them with felt pen on their sides, back and belly so that the score of the throw could be calculated.

If Jay had been a writer with the gifts of George Orwell (1949), the author of Animal Farm, could he have chosen a more vivid way to express the impact on his inner world of an infancy in an institution, where the babies were not individuals, but items to be fed, measured, weighed, changed and placed in one position, then another, according to the rules of the house? For Jay had not been adopted until he was 22 months of age. As a small baby he had been taken from his original parents by Social Services when he was found to be severely neglected. He had been placed in a nursery where the babies were not assigned a primary carer but looked after at random by a group of nursery nurses, so that, as a baby, Jay did not form a special relationship with any of them but was passed around like a parcel. It was a matter of luck, a toss of the dice, whether he was handed to one he liked. Although he was adopted at nearly two years old by devoted parents who were determined to make it all up to him, it was too late. The critical 18-month period of brain development in relation to a loving mother/carer had passed. In retrospect I think that I was not looking at a defence, a suppression of mental pain, because Jay had not developed the capacity in his frontal lobes to register and think about his emotions. He had no capacity to feel, in the transference, that he was special to me. I could have been any one of a series of psychotherapists and that was
why he felt no unease at being mixed up with his therapy siblings. Yet he was able to evoke in others the emotional impact of his early experience. At home he behaved in such a way as to evoke the institutional rule maker in his parents. In his therapy, the stereotyped and repetitive play with the animals vividly conveyed a bleak and regimented infant experience in the nursery.

Research on cortisol levels

To return to research findings, Mark Flinn is an anthropologist who has been conducting a 13-year longitudinal study of stress levels in village children on the island of Dominica in the Caribbean. When a threat is perceived, cortisol and other hormones are activated to modulate energy output and put the mind and body on alert, the fight or flight response that is triggered by the amygdala. Flinn observes that cortisol is needed to endure the ups and downs of everyday life. But the physiological changes associated with stress are designed for coping with emergencies. Sustained over time, they begin to break the body down. For example, under continual stress, the immune system is eventually damaged because it is dampened down so that energy can be redirected elsewhere. A response that has evolved to help us deal with incidental threats becomes detrimental when the perceived danger goes on too long.

Persistently high cortisol levels can be especially damaging in children. When stress continues over days, weeks or years, many of their developing systems are arrested, sometimes causing permanent damage. Unusually high cortisol levels from constant stress slow physical growth, delay sexual maturity and can slow the growth of brain cells (Small 2000, p. 35).

We have already seen something of these consequences for the Rumanian orphans, in spite of the fact that after adoption they caught up in terms of physical growth and maturation. This research gives us a glimpse of the biological processes involved in Jay’s growth delay, immature appearance and poor school marks. But it does not tell us anything about his individuality, his creative way of conveying stuckness and tedium, or what, when thinking about the mind rather than the brain, we would call his defences. Of course I am aware that I am making an artificial distinction here. Lack of consistent companionship, poor early nutrition, fear, stress levels and overproduction of cortisol on the one hand, Jay’s personal qualities, his impishness, charm, devotion to football, acting ability, naughtiness and laziness on the other, all these elements are part of his ‘self’, the totality of mind, body and spirit that makes up an individual.

Acting in the countertransference

Returning to the point where I put out the wrong box, I have thought about this as acting in the countertransference. I imagine that in his inner world I was an institutional carer who did not distinguish one child from another and this figure was projected into me by means of projective identification. But
whether this could properly be described as projective identification or the action of an unconscious ‘working model’ I am no longer sure (cf. Knox 2001, p. 624). In either case, there is the operation of an expectation that I will function like an uncaring carer. In terms of projective identification, the formulation could be that it was too painful for Jay to have memories, thoughts and feelings about his treatment by the institutional carers, so this composite figure in his inner world was projected into me in order that he could be rid of it. Then he identified the institutional carer as an aspect of me. With the box, I did act like an institutional carer and felt shocked by my forgetfulness until I could understand my action as an unconscious communication from Jay. The difficulty I was faced with was how to put my understanding into words that could gradually be tolerated by him. For if there was one thing that he did not want to know about, it was the infant core of his personality.

Unconscious communication

Of course you do not have to be a psychotherapist to be on the receiving end of projective identification. We all experience it in our day to day contacts with people, in the bank, in the supermarket, in the family when we find ourselves reacting in ways that seem unfamiliar, over intense or unexpected. I am trying to explore here something about the functioning of the mind and its primitive defences that, as far as we know at this early stage in brain research, goes beyond the operations of the brain and its synapses.

Or does it? Is psychobiological work on development giving us some clues about how projective identification works? Hofer (1990 in Schore 2001a) describes, in detailed fashion, how the infant’s immature and developing internal homeostatic systems are co-regulated by the caregiver’s more mature and differentiated nervous system. In this ‘symbiotic’ pleasurable state, the adult’s and infant’s individual homeostatic systems are linked together in a superordinate organization that allows for ‘mutual regulation of vital endocrine, autonomic, and central nervous systems of both mother and infant by elements of their interaction with each other’ (Schore 2001a).

This work points to an endorsement of Margaret Mahler’s concept of a symbiotic phase of development (Mahler et al. 1975). Developmental research describes a mother baby pair in emotional communication as ‘literally a biological unit’, a self-organizing regulatory system (Schore 2001a, p. 26). Intimate contact between mother and baby is mutually regulated by the reciprocal activation of their opiate systems; that is, raised levels of beta endorphins during playful interaction increase pleasure in the brain of both the baby and the mother. The implication is that there are simultaneous changes within the right brains of both mother and baby, constituting ‘reciprocal mutual influences’.

1 Allan Schore has written a chapter to be published called ‘Clinical implications of a psychoneurobiological model of projective identification’ which will help further our understanding of this elusive yet powerful phenomenon (Schore, in press).
I thought that the tedium that I experienced with Jay was not just due to the fact that his play was boring, but was part of a deeper unconscious communication of the atmosphere in Jay’s inner world that arose from his infancy. And I think that the tedium was conveying not only a memory, but was also the result of his dissociation from the anguish of being kept waiting what seemed like an endless time for a little care and attention. I imagined that such a baby experiences himself as boring, with no intrinsic capacity, no chubby, adorable, bright-eyed baby qualities, to enliven and engage his carer. Along with the early neglect, Jay’s internal experience that his capacity to grow and flourish was of no interest and gave no pleasure and satisfaction to his carer, may have been a psychic factor in his failure to grow. Is this just speculation? Was it the cortisol levels that caused his growth delay? Or are we thinking about two of the many ways of understanding the same symptom in the infinitely complex development of one child? It seemed to me, as his psychotherapist, that the uncaring carer was the internal object that underlay Jay’s inability to tie his shoes securely, or to tuck in his shirt. He looked uncared for no matter what efforts were made by his adoptive mother to buy just the clothes that he told her he wanted.

**Internalization**

How does the internalization of a caring object take place? In terms of brain development it takes place within the earliest relationship and is ‘experience dependent’. Stern calls the generalized image of interactions with a caring mother, built up on repeated experiences of being mothered, a RIG. RIGs are Representations of Interactions that have been Generalized (Stern 1985, p. 95). But what happens to that image based on perception? The quality of the way the internal mother and father behave in fantasy, in the inner world, varies enormously from child to child. Surely this is the operation of the individual mind, with its endowment and its conscious and unconscious experience.

**The personal myth**

Leon Edel, the distinguished literary psychologist and biographer, is interested in the unconscious myth of his subject. And I take it that the unconscious myth dwells in the realms of the mind whose relation to the brain remains a mystery. Edel writes, ‘The self myth is the truest part of an individual: by that myth we always seek to live; it is what gives us force, direction, and sustenance. The personality the world sees is usually much less interesting’ (Edel 1982, p. 27). Jay, too, had a sustaining fantasy that reminded me of the old cartoon I used to read as a child called ‘Dreams of Glory’. In it, Jay was a soccer hero. Not only was he the star, he was tiny, a baby star who was able to carry the entire game alone. He set up the football game on my desk and played it with
carefully selected animals that were named after the players on the British team playing in the World Cup of that year. The part of the footballer, Allan Ball, was taken by the bull, Rush by the cheetah, because the cheetah was so swift he could ‘rush’ around the field. Paul Gascoigne was played by the pig, because of Jay’s association between ‘Gazza’, Gascoigne’s nickname, and ‘gassy’, the greedy, gassy pig. The middle-aged goalkeeper, Shilton, was represented by the polar bear, a witty choice, because, standing upright with sloping shoulders and a worried look, the bear did uncannily resemble Shilton. The baby hero was represented by the baby kangaroo, a tiny figure in comparison with the others. The baby kangaroo could take a free kick and score from the opposite end of the field. He could run faster than all the other players and he did not even need the players on his own team to back him up. This is a beautiful depiction of the defensive, do-it-yourself, heroic psychology of the deprived infant, who has not got the emotional resources to acknowledge his dependency on a mother figure but sustains himself with the omnipotent fantasy that he can overcome all odds and supply all his own needs by his own efforts.

Such a fantasy is archetypal and can sustain young men through rigorous, commando style army training. Jay was trying, prematurely, to pursue the hero’s quest to overcome and defeat the regressive longing for dependency on a mother in the unconscious, to establish an identity with the father and separate into manhood. Seen as a developmental phase of adolescence and young manhood it can be expressed in sports, adventure, exploration in the sciences and in work of all kinds. But when it was the obsessive fantasy of a child, and at 13 Jay was still very much a child and not yet an adolescent, I found it to be defensive and compensatory, cutting him off from reality and building a massive protective wall around the frightened, vulnerable, desperately wounded infant at the core of his personality.

Questions

Much of child psychotherapy consists of giving meaning to impulses and phantasies that spring from a primitive part of the mind, so that they can be elaborated in the frontal cortex, the more highly developed part of the brain, rather than acted on in uncontrollable behaviour. After all, I now ask myself, could Jay’s psychotherapy have had the aim of opening new brain pathways in his frontal cortex that would give him access to the undeveloped area of a relationship with a loving carer in his inner world? Is it really possible to reach a level that has been laid down, or ‘wired’ during the first 18 months of development?

Another of the questions in this paper concerns the extent to which Jay’s brain had pockets of neurological damage. Does such damage manifest itself in defences which are psychic in origin and operation, or simply in behaviour that is the consequence of such damage? How does a defence manifest itself
neurologically? Is there a difference or is the psyche inseparable from the chemical and hormonal balance of the brain?

We know that abused children show a brain scan that is different from that of loved children. Research done by Dr. Martin Teicher (2000), and his study team at a psychiatric centre affiliated to Harvard Medical School, has found that trauma in childhood can cause deformities in critical parts of the brain, in turn causing depression, anxiety and other conditions. In children who have been abused or neglected, the corpus callosum, the bundle of nerves that links the two hemispheres of the brain and acts as the main information pathway between them, was found to be up to 40 per cent smaller than average (Burke 2000). Allan Schore gives detailed information about the impact of early deprivation and trauma on a baby’s brain development in the Infant Mental Health Journal (Schore 2001b). During the 1990s, the ‘decade of the brain’ produced the concept of critical periods in development. Allan Schore writes that ‘this construct emphasizes that certain detrimental early influences lead to particular irreversible or only partially reversible enduring effects, highlighting the fact that limitations of biological organization set into place once systems differentiate’ (Schore 2001b). To what extent can this kind of damage be repaired by psychotherapy?

It looks as if psychotherapy can help to a limited extent. Before his therapy started, there was a lot of concern about Jay’s school placement. His writing and spelling were poor and he had to repeat his last year at primary school. Sometimes he soiled in school and intermittently soiling was a considerable problem at home.

The result of therapy was that Jay’s teacher reported that he had made good progress and was producing four times as much written work as in the previous year. Both the teacher and head teacher confirmed that he presented no behavioural difficulty in school. With good co-operation from the Educational Psychologist, he was found a place in a suitable secondary school and the mother, fearing that psychotherapy would bring a stigma with him to his new school, requested that we stop therapy at the end of his primary schooling.

Conclusion

I have brought together a few elements of brain and neuroendocrine research and set them beside an extract of psychotherapy with a boy with early deprivation in order to raise some questions about how they interrelate. It is now well established that early intervention is crucial. From birth to three years, the developing systems are extraordinarily sensitive and plastic, and therapists are now able to work with the attachment relationship between carer and infant to enhance a developmental thrust that is already biologically prepared. The work focuses on emotional regulation of interactions between the pair that are timed to critical periods of social and emotional development.
I should like to end with part of the message that Allan Schore delivered in June 2000 to the Department of Health and Human Services in Washington, DC, the Fifth National Research Conference of ‘Head Start’. ‘Early interventions have life-long effects on the adaptive capacities of a developing self. These efforts, if expanded onto a larger scale, could make deep inroads into not only altering the inter-generational transmission of psychiatric disorders but also improving the quality of a life throughout the lifespan. A deepening social and political commitment to early treatment and prevention programs would thus be a major contribution to the problems our societies are now facing’ (Schore 2001b).

In line with this, the application of child psychotherapy to work with mother–infant couples is being implemented in Britain in child mental health services and Sure Start initiatives.

TRANSLATIONS OF ABSTRACT

Práce popisuje některé z otázek neurobiologického vývoje dětského mozku s cílem ukázat, jak je duševní vývoj dítěte závislý na zkušenosti, a tedy na vztahu mezi dítětem a jeho pečovatelem. Odvolává se na teorii kritických období raného vývoje mozku a všimá si úlohy amygdaly ve vývoji emocionálního života dítěte. Příklad rumunských sirotků ilustruje vliv rané deprivace na emocionální vývoj. Otázky a spekulativní úvahy týkající se vztahu mezi mozkem a psychikou z hlediska rané deprivace kombinované se schopností smysluplného vyjádření prostřednictvím hry vycházejí ze stručné informace o psychoterapii třináctiletého chlapečka. Neurobiologické závěry podporuje skutečnost, že Rita Carterová a Alana Shore docházejí ve svých pracích ke shodným výsledkům.

Cet article prend appui sur une petite partie de la neurobiologie du cerveau et de son développement chez le bébé, pour montrer combien le développement mental du bébé est à comprendre comme un ‘vécu dépendant’, et par conséquent une fonction de la relation entre le bébé et ceux qui prennent soin de lui. L’article se réfère à la conceptualisation des périodes critiques du développement du cerveau dans les premiers temps, et considère le rôle de l’amygdale dans le développement de la vie émotionnelle de l’enfant. Les effets d’une privation précoce dans le développement émotionnel des orphelins roumains sont donnés en exemple. Il est aussi donné un extrait de la psychothérapie d’un garçon de 13 ans, à partir duquel sont avancées quelques questions et hypothèses sur la relation entre le cerveau et l’esprit qui peuvent se formuler et apparaître du fait de la combinaison chez cet enfant d’une privation précoce et d’une capacité à communiquer à travers le jeu. La plupart de la neurobiologie s’étie sur les écrits de Rita Carter et Alan Schore.

Diese Arbeit beschreibt ein wenig aus der Neurobiologie des in Entwicklung befindlichen Gehirs des Babies, um nachzuweisen wie die psychische Entwicklung des Babies ‘erfahrungsabhängig’ ist und daher eine Funktion der Beziehung zwischen dem Baby

In questo lavoro si fanno alcuni accenni alla neurobiologia dello sviluppo del cervello del neonato per mostrare come lo sviluppo mentale del bambino sia ‘esperienza-dipendente’ e sia quindi in funzione della relazione tra lui e chi di lui si occupa. Si fa’ riferimento al concetto di periodi critici nello sviluppo precoce del cervello e si considera il ruolo della amigdala nello sviluppo della vita emotiva del bambino. Si illustrano gli effetti della depravazione precoce sullo sviluppo emotivo degli orfani Rumeni. Viene presentato un estratto dalla psicoterapia di un ragazzino di 13 anni come base per formulare alcune domande e ipotesi sul rapporto tra cervello e mente alla luce della depravazione precoce del bimbo insieme alla sua capacità di esprimere significati attraverso il gioco. Gran parte della neurobiologia si rifà agli scritti di Rita Carter e Alan Schore.

Este trabajo describe brevemente la neurobiología del desarrollo del cerebro infantil para mostrar como el desarrollo mental del bebe está en ‘experiencia dependiente’ y por tanto una función de la relación entre el y quienes lo cuidan. Se refiere al concepto de periodos críticos en del desarrollo temprano del cerebro y mira hacia el papel de la amigdala en el desarrollo de la vida emocional del niño. Se ilustran los efectos de la privación temprana en el crecimiento emocional de huérfanos rumanos. Se presenta un extracto de la psicoterapia de un niño de 13 años como base para algunas preguntas y especulaciones sobre la relación entre el cerebro y la mente a la luz de su privación temprana combinada con su capacidad para dar sentido a los juegos. Mucha de la neurobiología esta tejida por los escritos de Rita Carter y Alan Schore.
References