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| **Unit No. 6** | ***Brain Development and Attachment*** |
| **Unit objectives*** To consider research findings about how the brain develops through childhood and adolescence
* To explore the implications of an understanding of brain development for practice
* To refresh your knowledge about attachment and its importance for human growth and development.
* To consider the importance and relevance of attachment for children’s capacity to learn.
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| **Outline of Unit*** Brain development
* Attachment task
* What is attachment?
* The attachment cycle
* The internal working model
* Different attachment strategies and their impact
* Why is attachment important?
* Case studies
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| **Introduction** Welcome to the unit on brain development and attachment. This is a very substantial and important unit which covers key theories that can help us understand the early experiences of looked after children and how these have affected their development, behaviour and capacity to learn. The ideas you will be covering are based on rigorous scientific research and although at times this may be off putting they are directly relevant to your daily work with children.  |

### Brain development

In the last ten years there has been an explosion in knowledge about the development of the brain. Some of this has come about as a result of new technology that can measure the activity of the brain as it functions. This can provide clear images of the brains of different children and match the observed activity with the type of experiences that children have had in their very early months and years. It now seems likely that children who have been abused and/or neglected have brains that have developed very differently from those of children who have had more positive early experiences. The emotional experience that children undergo can shape their brain and it seems likely that the first three years of life, when the brain more than triples in size, are a very important period in this process. This is not to suggest that if children experience abuse, neglect or trauma in this time that there is no hope for recovery but it does mean that it is more difficult to help children to develop alternative ways of understanding and interacting with their world. Another important period of brain development takes place in adolescence and very recent research is suggesting that this period may also be a time of vulnerability and potential growth and development.

Read the hand-out on brain development provided and go through the PowerPoint slides. These will give you greater detail of how the brain is structured and what happens when children have different kinds of experiences. As you read this think about children you know well and the experiences they have had – does this help you to understand their behaviour better? Take your time about this. It may be unfamiliar information and the language may be alienating at first but it is important to persist. This subject will be revisited in different ways throughout the course because it helps us to understand a great deal about the difficulties many looked after children experience with learning but also gives clues about how to intervene helpfully.

Not only can a study of brain science help us to understand children better it also gives us strong clues on how to help them recover from adversity and develop their capacity to learn more effectively and manage their emotions and behaviour more positively. Spend a few minutes thinking about a child you work with closely and jot down as much detail as you can about the child’s experiences in the womb and in the first three years of their life. Now do the same for a child who is well known to you in your personal life (preferably one of your own children if you have any) who has had a very positive early experience. What are the differences in experience between the children and what do you think are the possible outcomes for each of the children in terms of behaviour, current emotional state, ability to make relationships or capacity to learn. When you are doing this, do not just concentrate on the dramatic headline events but try and imagine what it felt like to be the children and what their daily lives were like.

It is likely that you will be able to recount much richer and more detailed experiences for the child you know well. It may, indeed, be that you have absolutely no idea what happened to the child you work with during their earliest years. If you know this child suffered neglect, abuse or domestic violence try and imagine the terror and helplessness they experienced as an infant and the impact on their brain compared to the developing feelings of security, enjoyment and the sense of being known that your more fortunate baby experienced. The children you work with may have missed out on crucial developmental experiences and this has left them with a brain that functions in a more primitive way than those of other children their own age. Rather than expecting children in our care to be able to behave consistently at their chronological age it is important that we respond to their developmental needs at the stage they actually are, not the stage we wish they had reached.

The PowerPoint on using brain science identifies the crucial elements of intervening in an effective way with children whose early experience has adversely affected their developing brains. These ideas draw on the work of Bruce Perry at the Child Trauma Academy and there is a link to an article that explains these ideas in more depth. This and some of the other resources available in this Unit are worth reading if you want to explore neuroscientific ideas in greater depth. The key ideas underpinning this approach are that we need to work with children in a way that recognises their developmental stage. For some areas of our children’s functioning this may mean that they operate as a very small baby even though they are in the body of a much older child. Concentrating on helping children to change by using words or cognitive concepts will often be ineffective for children who have relatively underdeveloped higher brain functions. These children may react better to non-verbal approaches. Moreover, it is important to recognise that the brain changes much more quickly and effectively with frequent short exposure to stimuli rather than infrequent lengthy interventions. The people best placed to help children to develop their brains are those who live with them or teach them on a daily basis. Children will also be unlikely to respond to any attempt to help them change or develop unless they are relationally safe. Stability of placement and a sense of being cared about and valued make it more likely that children will be able to relax sufficiently to be able to respond to new experiences rather than defend against them. The time in most of our lives that we felt least physiologically distressed was in the womb and the constant rhythm of that environment was dictated by our mother’s heartbeat. Interactions with children that harness the same basic rhythm are more likely to help soothe hyper-aroused children and open them to the possibility of change. Finally any interventions with children should be inherently rewarding for them and respectful of their lives and background.

Think about your own organisations and decide whether these core elements of a neuroscientifically informed approach are in place.

**Key Messages on Brain Development**

* Babies’ brains develop very rapidly in the first three years of life.
* Early emotional experiences have a direct effect on the developing brain.
* Brain cells communicate information to each other by making synaptic connections.
* The brain learns through patterned, rhythmic, repetitive activity. Repeated experiences lay down particular neural pathways in the brain.
* Over time synaptic connections that are frequently used are strengthened but those that are not used are lost.
* Young children who are neglected or abused develop pathways that are related to stress and fear rather than trust, soothing or pleasure.
* The effects of adverse experiences on the developing brain make it harder to learn in a formal school environment.
* There is a further rapid period of brain development in adolescence that is focused mainly on the prefrontal cortex, where higher reasoning takes place, and the limbic system that governs emotion.
* Young people are particularly vulnerable and at risk at this age but are also open to substantial growth and development.
* The most effective interventions with young people are those that are built on an understanding of brain development.
* Children have unique developmental experiences and their brains are different even if their behaviour is similar.
* Adults working with children should respond to them at their developmental level rather having expectations of them based on their chronological age.
* It is easiest to make changes when the brain is still organising than to change an already organised brain.

### Introductory Task for Attachment

Read the following questions and thinking about small children you have known write down your responses to them.

* What does a baby or young child do that elicits a care giving response from an adult
* What is required from the care giver or environment to enable attachment?
* What factors might impede the development of secure attachments?

When you have finished, read the hand-out “Attachment questions” which outlines some possible answers to the questions although you may have had additional ideas.

### What is attachment?

In undertaking the previous task you will probably have correctly identified a number of behaviours in children and adults that enable attachment to take place. But what is the purpose of attachment? It is important to remember that human beings evolved in a predominantly hostile environment and that unlike most other mammals the human baby is totally dependent on adults at birth and for a long time afterwards. The most important task facing a baby is to survive and in order to do that the baby has to establish an effective strategy for making sure that the adults around him or her provide the basic necessities of life. Attachment behaviour is usually activated at times of distress or anxiety and its purpose is to gain comfort or protection. Babies will develop the strategies that are most effective in doing this in the emotional and social environment that surrounds them.

### Video clip: At this point view the video clip in which Helen Minnis is talking about attachment. Helen describes the normal experience of attachment in infants and describes some of the consequences for children when their early attachment experiences are difficult.

### The Attachment Cycle

Stress or discomfort trigger a reaction of crying in the new baby. The response of the caregiver to this expression of distress is crucial in determining over time how the baby will learn to cope with distress in the future and how they will perceive adults and the world in general.

Look at the two slides describing the attachment cycle. In the slide that describes the development of secure attachment the caretaker is able to provide on a regular, predictable basis a timely and effective response to the baby which makes them feel better. These babies learn that stress can be managed and that people will help them to do this. They develop trust in other people and see the world as a safe, predictable place. The second slide shows what happens for the less fortunate baby who does not have that regular experience of being soothed through the help of an adult caretaker. They do not learn ways of managing their stress and are unlikely to trust adults or see the world as safe. Parents and caretakers do not have to “get it right” all the time but for a secure attachment to develop the baby has to experience sufficient good and sensitive care to build a positive perception of relationships and the world

### The Internal Working Model

During their first year of life babies are learning at a faster rate than they ever will again. They are making sense of their environment through the stimulation of their senses and, as they grow older, by interacting with it directly through exploration and play. This learning is essential in helping them to understand how the world works and to predict what effect their actions have on it. It is not, however, only the physical world that they are learning about, they also have to try and understand their social and emotional environment. Through their experiences with other human beings they construct an idea of themselves, other people and the relationship that exists between them. The attachment cycle is an important part of this process as are the more sociable interactions that infants have with their caregivers. These experiences that are repeated on a daily basis with those close to the infant provide the material from which the baby constructs an internal working model of themselves in relation to others. This is the set of expectations that the baby will take into their relationships as they expand their social world and develop through childhood and into adulthood. Although a person’s internal working model can be modified over time if circumstances change, it does appear that the model developed in infancy and young childhood tends to predict the emotional world view and pattern of relating throughout life.

Look at the slides of the Internal Working Model. What do these images make you think about the possible internal working models of the young people with whom you live or work.

### Different attachment strategies

As we mentioned above the most important task of the infant is to survive and to do this a baby needs to engage the support of at least one adult. In order to do this, babies quickly work out what kind of behaviour is most likely to ensure the availability of an adult to protect them. Four distinct strategies or styles of attachment have been identified by researchers. It is important to remember that the attachment strategy that is adopted by a child is to do with a particular relationship not to do with the child. It is perfectly possible for a child to have a secure attachment to one parent and an insecure attachment to the other.

* Secure attachment (Type B). This is the most common type of attachment and it occurs when infants can reliably predict that the adult caring for them will respond warmly and consistently when they are distressed or frightened and that they will be effective in reducing or removing the cause of their distress. These children are able to use their carer as a secure base from which to explore their world. They are comfortable with expressing emotion and are able to learn easily.
* Insecure avoidant attachment (Type A). This type of attachment occurs when the baby realises that expressing distress or negative emotions will predictably lead to rejection or withdrawal from the caretaker. These babies learn to suppress negative emotions so that they do not drive the adult away. As they become older these children may become compulsively self-reliant or compulsively caretaking.
* Anxious ambivalent attachment (Type C). This type of attachment occurs when a baby cannot predict the response of the adult. At times the adult is responsive at others the adult ignores the baby or responds in an insensitive way. This infant’s strategy is to escalate their own arousal so that they cannot be forgotten about. The infant successfully keeps the adult available but at the cost of being able to relax or accept comfort. Older children may alternate positive and negative emotions in an attempt to control adults; the early lack of predictability in their lives may make it difficult to engage in formal learning that is built on predictable patterns.
* Disorganised attachment. The dilemma this baby faces is very disabling. Babies need attachment figures for protection and comfort when they are stressed or frightened. For these babies the source of the stress or fear is the very adult from whom they need to seek protection. This means that it is very hard for a baby to organise any coherent response and these infants are likely to be found in very disturbed or abusive families. Many looked after children may have disorganised attachments to adults in their lives.

Do you recognise any of these behaviours in the children you work with or care for?

### Why is attachment important for learning?

Attachment is primarily important for survival. Without an adult available to them a human baby will die. Babies have to control the adults around them sufficiently well to ensure that their basic needs are met. For babies who experience warm predictable and reliable caretaking the preoccupation with survival can give way to a basic trust in adults to provide good experiences. This enables these babies to explore a whole range of physical, social, emotional and cognitive experiences without undue anxiety. As these infants progress into early childhood and experience their first group learning settings they will be primed to trust the adults and see them as a potential source of help. Babies who cannot rely on such attuned and predictable care have to maintain their controlling behaviour to ensure that they survive and this allows them much less time and energy to explore the richness of their world. By the time they reach a formal learning situation they are likely to be hostile to or dismissive of adults and far less ready to learn from them.

As well as ensuring safety and survival the attachment relationship fulfils a number of other functions that support the development of infants and young children. One of the most important experiences a securely attached infant has during the first year of life is support from one or more caretakers in learning to manage their own stress. Initially the baby is helpless in the face of discomfort or fear and is flooded with the stress hormone cortisol. The caretaker responds to the baby’s stress by trying to relieve it. The caretaker themselves experiences stress as a result of being exposed to the baby’s intense emotion but as they hold, stroke and interact with the baby their own stress is reduced. The baby being held close to the carer feels the changes in the carer’s body and synchronises with them thus reducing their own stress.

Over time the baby learns that stress can be managed and develops their own strategies to regulate stress. Infants who do not learn this essential skill are unable to reduce cortisol in their bodies to a normal level and this can distort their responses to stress. Some babies are perpetually jumpy and over reactive to minor difficulties, others hardly respond at all even to very severe external experiences. As well as enabling babies to cope with stress, sensitive carers are able to help babies to begin to develop other emotional skills they will require as they grow older. They are attuned to the emotional experience of their babies and this can help children to begin to recognise their own and other people’s feelings.

Look at the slide *The seven steps of infant attachment*. This outlines the way that the attachment relationship helps the infant to develop a number of emotional and cognitive skills that will allow them eventually to function well in a group learning environment. Without the regulatory skills that enable children to manage stress, impulse, rage and shame they will struggle in a classroom setting. If they have not begun to develop empathy or do not have the fundamental patterns of cognition such as cause and effect, progression of time and distinguishing fact from fantasy they may find formal learning very hard.

Within the Unit there are several resources which provide more detailed explanations of attachment theory and some examples both of how attachment theory can inform practice with looked after children and of projects that have a specific focus on attachment.

**Case studies**

Read the case studies of Morag and Jamie and think about the following questions.

It may be helpful to read the hand-outs for this module to help you complete this activity

* What impact may the child’s environment have had on their developing brain?
* What factors have affected the development of attachments in this child?
* How do you think this child has been made to feel about him or herself?
* What understanding do you think he or she has about the adults in their lives?
* What will he or she need to help them learn at home and at school?

### Jamie

Jamie has had poor experiences since he was a baby with mental ill health making his mother unable to be proactive or responsive. His own prematurity would have made it more difficult to establish a secure attachment. He has had episodes of positive care but little consistency. Jamie is likely to have been made to feel insecure and anxious. With his mother he is aggressive because he is not receiving the attention he needs, therefore needing to make his presence known. With his father he responds in a different way to elicit attention.

His understanding of adults is that they are unpredictable and unresponsive. Jamie has had almost no help in learning to manage his stress. The positive relationship with his grandmother was important but her death removed this support as well as making his mother even less available. Jamie operates at a much younger level than his chronological age, lacking the confidence and reassurance to explore his environment.

At home and at school Jamie will need consistency, reassurance and to be set tasks and challenges which he can successfully complete and which may be more appropriate for a younger child. He may need the supplementary support of a nurture group or its equivalent to provide structured compensatory experiences which will enable him to develop more age appropriate emotional awareness and control. He will probably find formal learning very difficult as he has a very rudimentary understanding of cause and effect or narrative and meaning.

### Morag

Morag had positive experiences as an infant. This means that she is likely to have developed some capacity to regulate stress even though later adverse experiences have had a damaging impact on her. Since she was a toddler, however, her life has been characterised by moves and rejection. She is likely to have been made to feel insecure and anxious about those who care for her, and this has manifested itself as angry and aggressive behaviour. The racism she has encountered within her extended family and at school has exacerbated her insecurity and low self-esteem. Her understanding of adults is that they are unreliable and that she is not lovable. A strong positive relationship with a sibling and positive relationship with staff and a teacher illustrate that, at some level, Morag still has a positive view of herself. Emotionally and cognitively she is operating at the level of a much younger child. She needs targeted support at home and school to enable her to catch up to the level of which she is intellectually capable. Her recent positive development is taking place in the context of a secure relationship with her teacher and positive relationships at home. The planned move to secondary school is potentially very destabilising and the planning and communication between school and home must continue. Her new school need to be clear about both her vulnerability and her potential to ensure that her particular needs are thought about and planned for. Her previous experience of racism was very destructive and there needs to be a proactive plan to ensure that she receives positive cultural understanding and support both at home and at school. She will soon be entering puberty and her adolescent years are a time of both risk and potential. Morag has a number of very positive qualities and capacities that should be strengthened and supported as she enters this crucial period of her life.

### Key Messages on Attachment

* The quality of early attachments (or lack of them) appears to be significant in relation to subsequent functioning.
* It is vital that children have consistent, reliable, responsive caregivers, particularly in the early months of life in order to provide a secure early base.
* A range of adverse factors can contribute to the formation of insecure attachments
* A child or young person’s attachment pattern has enabled them to ‘survive’. Giving up a survival strategy and adopting more positive patterns of relating will be difficult and may take a long time.
* Forming warm, predictable and consistent relationships with children and young people, even for short periods of time, assists in the development of a more positive internal working model.
* Deliberate withholding of attention, regard or comfort from a child or young person is likely to damage his/her sense of self-esteem and self-worth.
* An understanding of a child or young person’s attachment behaviour allows appropriate intervention to be planned both at home and at school.
* Not all children and young people who are looked after have attachment difficulties, nor are attachment difficulties only present in children and young people who are looked after.