HOW CHILDREN GROW AND LEARN: EARLY EXPERIENCE MATTERS

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How children learn is one of the areas where understanding today has increased. The question then arises - *What does neuroscience tell us about a baby's brain*? Scientists have, in the last three decades, made great progress in finding out about a baby's brain and how they learn. It is now known that a baby's brain at birth is about the size of a large grapefruit. Babies are born with millions of neurons (nerves) in the brain. At this stage, brain development is most rapid in the first year of life. Babies' brains are prepared for responding to making connections in the brain.

Connections are necessary for learning to occur. Although babies cannot talk, they can initiate cues and respond to the human voice and interactions. This is how they make connections and this is a time when the brain is hard-wired. As a result of experience – for example, being talked

to, carried by an adult, smiled at – all positive interactions cause the nerve cells to connect. As they join together, they make connections.

This process is called 'synaptic density' and the figure below shows the baby's brain at birth with neurons not yet connected. Then at age 7, the brain has hard wired. If the neurons are not connected, the brain systematically destroys unused neurons. This is known as a "use it or lose it" principle (refer to image 1).

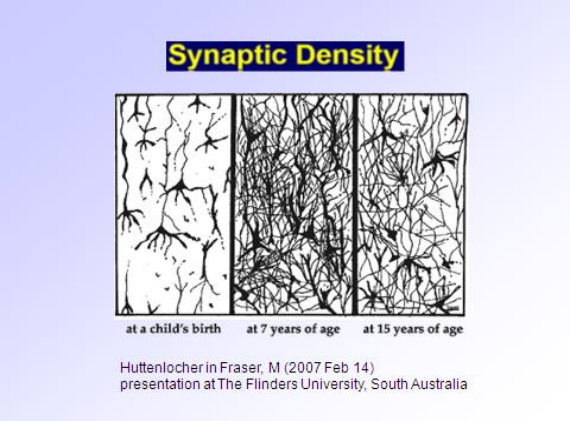

Image 1

WHAT CAN PARENTS AND TEACHERS DO TO FOSTER EARLY DEVELOPMENT?

Children need to grow up in a safe, secure environment where, early in life, they form attachments with the significant people in their lives. These are the responsive adults who set reasonable limits yet give children the freedom to explore.

Give the baby lots of love and attention. Spend time with the baby and talk to her/him. Tell the baby what is going to happen next: "*I'm going to pick you up and feed you"*; *"Time to change your nappy"*. The baby's receptive language will develop and although they cannot talk, they will understand over time. Their expressive language develops from approximately two years of age. However, there are individual differences and some toddlers start talking earlier or later than two years.

This approach needs to continue in the childcare centre. The My First Skool (MFS) policy of using the *primary caregiving system* enables the baby to form an attachment with the caregiver. This

does not undermine the parents' bond and enables the child to form an attachment. Through this, the child's learning continues. As the hard-wiring of the brain continues through the early years of a child's life, the roots of stability and security are formed and learning can flourish.

Babies in childcare need to experience high quality care as some of them are placed in care for up to 12 hours a day. If they receive minimal attention and with a multiple number of carers, their development can be adversely affected. Also, if they are restricted physically and placed in rockers or playpens, their mobility will be restricted. Babies need to be in a safe environment with opportunities to explore and move as they become mobile.

LEARNING THROUGH DISCOVERY

To return to the question on whether we have changed our understanding of how children learn, we need to return to the work of the great developmental theorist, Jean Piaget (1896-1980). He challenged the then pervading behaviourist theories of conditioning children, telling them the answers and engaging in rote learning, applying external pressure. Piaget turned this all around and embraced what is known today as 'discovery learning'.

Piaget stated, "Every time we teach a child something, we prevent them from making their own discoveries."

- Piaget also proposed that the most important motivation is the child who is a self-motivated learner who explores the world by testing out ideas without external pressure.
- He also proposed a total acceptance of individual differences.

Some of Piaget's theories have been challenged and some ideas modified by theorists called Neo Piagetians or Information Processing Theorists. Piaget's categorizations of invariant stages have been challenged as children are found to learn at a faster and earlier age than Piaget proposed. However, his original thesis of how learning occurs through a process of assimilation of information and accommodation still holds true today. As does the importance of recognizing individual differences, self-motivation and discovery learning. Indeed, one of the principles of the

popular International Baccalaureate approach uses discovery learning as a pillar of its philosophy.

The curriculum that we provide for children in the early years is of the utmost importance. The RBC curriculum is premised on the principle that

Early Experience Matters.

The following is a summary from a paper in an international journal by Ebbeck, et al (2018).

Taking account of neuroscience for the birth-to-three age group, the implications for teachers working with this age group are that:

- From birth, babies' brains are ready to begin making connections.
- Intelligence is not fixed at birth and babies' brains change as a result of experience.
- Babies are born with a powerful motivation and ability to learn.
- Educators need to engage in teaching/caring practices that are founded on positive relationships with children, which provide individualized care by responding to individual needs.
- Educators and parents can make a difference to learning and development for this critical period of development.
- Educators need to engage in practices that are in the best interests of children in the birth-to-three age group.
- Toddlers and young children are capable of more complex thinking, problem-solving and of developing reciprocal attachments than we previously believed.

- Over time, educators need to help infants and toddlers develop the beginnings of self-regulation, self-direction and responsibility, as these are fundamental behaviours for success in later life.

Neuroscientists also believe that there are sensitive periods for brain development. This is described as a time that is best for certain capacities to emerge, and also when a young child is most responsive to environmental influences. For example, it is believed that a child can learn a second language effortlessly in the first few years of life but later in adulthood, that same capacity no longer exists.

In summing up, one can say in relation to young children, they learn best by being self-motivated. By being in an environment where they are safe with caring adults who recognise that children need materials and equipment, they can explore and make their own discoveries. In such an environment, children develop self-confidence in their own abilities and learn at their own individual rate.

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