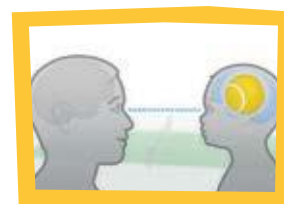


Sharing the Science

Using metaphors to explain child development



Introduction

Research has shown that the British public has a limited understanding of child development. This limits people's ability to understand how family life can be improved and how abuse and neglect can be prevented.

If people do understand child development and how it can be derailed by abuse, they quickly see how the work done by services that support families can help and get a child back on track. Professionals who know these concepts have multiple ways of explaining them, which can be confusing and lead to silo working.

This note sets out a number of metaphors that we can use to explain early child development. The metaphors were originally developed in the US by Harvard University and the FrameWorks Institute. They have recently been tested in the UK and adapted for use here by the FrameWorks Institute. They have been found to help people understand key concepts and to be memorable over time and easy to repeat.

Put simply, using these metaphors can boost people's understanding of child development and child abuse, and their increase their support for our agenda for children.

Six metaphors are set out below, these are:

1. Brain Architecture
2. Serve and Return
3. Toxic Stress
4. Air Traffic Control
5. Overloaded
6. Tipping the Scales

Brain Architecture



Metaphor

Our brains are built through a process that begins before birth, and continues into adulthood. Like the construction of a house, the building process happens in a sequence – first laying the foundations, shaping the rooms and later wiring the electrical system. These things have to happen in the right order. Early experiences literally shape how the brain gets built. A strong foundation in the very early years increases the chances of positive health and learning later on, while a weak foundation increases the odds of having difficulties later on.

What it does

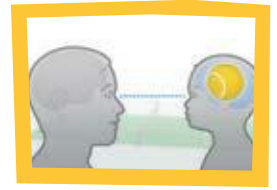
This metaphor can be used to make the following points:

- o It's an active process
- o Early experiences shape brain development and provide the foundation upon which future learning, health, and behaviour all depend.
- o Children's brains develop over time in a predictable, sequential pattern.
- o Positive experiences and interactions are the "materials" that build strong brain architecture.
- o Just like building materials have varying degrees of quality, the quality of a child's early experiences affect the sturdiness of that child's brain architecture.
- o While the brain has a continued capacity to change and adapt, it is always better to "get it right the first time" – that is, providing the brain with the right types of experiences early on in development makes positive outcomes later in development substantially more likely.
- o The metaphor allows for the recognition that intervention is possible as well as desirable.

Here's a video to illustrate the metaphor:

<https://www.youtube.com/watch?v=WC8MsPOSdjA&list=PLqA6Q-vvA4sNtS7AOONhiXoNsHIAhTBJG&index=4&t=0s>

Serve and Return



Metaphor

A vital ingredient in a young child's growth and learning (and brain development), especially from ages nought to five, is the "serve and return" interactions that they have with their parents, caregivers and the people in their communities. Like the serve and return rally in a good game of tennis, young children naturally reach out for interaction with adults through babbling and imitating facial expressions. This process helps them develop important language, cognitive, and social skills. If adults do not respond by getting in sync with children and returning these kinds of noises and gestures, the serve and return rally breaks down and the child's developmental process is interrupted. This has negative implications for later learning.

What it does

This metaphor provides a useful tool to talk about children's development, clarifying understanding about carer/child interaction and illustrating what it looks like. It can be used to make the following points:

- o It is an active process
- o To develop well, young children need to have consistent back and forth – Serve and Return – interactions with their parents and other adults in their lives.
- o It is important to maintain a "rally" in interaction, with proper time and attention paid to the "game".
- o Serve and Return interaction is important and valuable, and can be done effectively by all adults who care for children.

Communicators using this metaphor should be careful to emphasise that Serve and Return interactions refer to interactions with very young children, and these interactions crucially contribute to cognitive and linguistic development. It is important that the focus should be on the process rather than the content of communication/interaction. Communicators should use this metaphor, particularly in relation to interactions between adults and younger children. In order to avoid the idea that a game of tennis is "won," communicators should emphasise the language of "rallying" in their talk of Serve and Return.

Here's a video to illustrate the metaphor:

<https://www.youtube.com/watch?v=RE6nplOKppw&list=PLqA6Q-vvA4sNtS7AOONhiXoNsHIAhTBJG&index=6&t=0s>

Toxic Stress



Metaphor

Toxic Stress happens when a child experiences severe and on-going stress – like extreme poverty, abuse, or violence in the community – without consistent supportive relationships. Toxic stress affects the way that the child's brain develops and can lead to lifelong problems in learning, behaviour, and both physical and mental health. There are different kinds of stress that very young children – say ages nought to five – can experience: there's positive stress, buffered (sometimes known as tolerable) stress, and Toxic Stress. Positive stress is the types of challenges that can actually help children develop – like facing a challenging social situation or preparing for a really hard exam. Buffered or tolerable stress is things that could damage development, but that are buffered by having supportive positive relationships – like having strong adult support when a loved one dies. And then there is Toxic Stress.

What it does

The metaphor can be used to make the following points:

- o Stress is not always character building
- o Some low level stress is positive, some stress is made tolerable when its effects are buffered by supportive carers, and some is toxic.
- o Toxic stress affects child development and mental health.
- o The effects of toxic stress are long lasting and damaging.
- o Toxic stress is a serious problem that requires attention within the family and community as well as wider society.

Focus on toxic stress as chronic, and influenced by factors outside of the child's – and often the family's – control. Also emphasise the significance of toxic stress in young children's development and the potential negative effects of consistent exposure to such stressors.

Here's a video to illustrate the metaphor: <https://www.youtube.com/watch?v=YFarEj-1sGA&list=PLqA6Q-vvA4sNtS7AOONhiXoNsHIAhTBJG&index=2&t=0s>



Air Traffic Control

Metaphor

Children's ability to remember, focus and pay attention – is like the air traffic control system at a busy airport. At an airport, some planes have to land and others have to take off at the same time, and there's only so much room on the ground and in the air. A child's ability to manage competing demands is a skill that develops over time, requiring practice and support. Likewise children need to develop their brain's air traffic control system to manage their mental airspace – with the support of caring and sensitive adults. These 'executive function' skills regulate the flow of information and enable children to focus on tasks, create mental priorities, avoid collisions, and keep the system flexible and on time. In children, this air traffic control system needs to be actively built as early as possible.

What it does

This metaphor can be used to make the following points:

- o It's an active process, not a thing that just happens automatically.
- o Co-ordinating mental processes, managing and filtering distractions, prioritising tasks, and shifting attention (known as 'executive function') are fundamentally important skills of early childhood.
- o The skills that comprise executive functions develop over time and with practice. Just as a newly-trained air traffic controller begins at a smaller airport before working up to directing traffic at a major multi-terminal airport, children need opportunities early on to practice their executive functions skills in supportive environments.
- o You do not have to give up on a child who has problems – children can be supported to develop their executive function at all ages.

This is one of the more complex metaphors so be ready to provide additional explanations about what executive function skills are and examples of how these skills support children's everyday learning and development.

Here's a video to illustrate the metaphor:

<https://www.youtube.com/watch?v=a1NXKZAadPc&list=PLqA6Q-vvA4sNtS7AOONhiXoNsHIAhTBJG&index=5&t=0s>

Overloaded



Metaphor

When a lorry carries too much weight, it can be overloaded to the point of breaking down. And when parents are burdened with stresses like poverty or lack of support, the weight of these problems can overload their mental and emotional capacity to take care of their children's basic needs. Over time, carrying and managing heavy burdens puts a strain on people, and can weaken their ability to care for their children. And when an especially large burden is loaded onto a person who is already overloaded – such as the loss of a job – it can cause a breakdown in care.

However, just as we can unload an overloaded lorry by bringing in other lorries, or moving some cargo by train instead, we can provide social supports that offloads sources of stress from overloaded parents, and improve their capacity to care for their children.

What it does

This metaphor provides a useful tool to frame messages about the causes of, and solutions to, neglect. It can be used to make the following points:

- o To explain how social factors can lead to neglect
- o To frame discussions about how societal-level solutions can address child neglect (e.g. by 'taking off the load' or helping people 'manage the load').

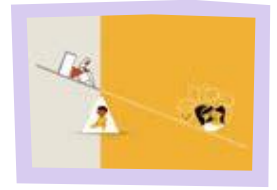
It's important to emphasise the 'sticky language' of the overloaded metaphor. For example 'load', 'loaded', 'stacked', 'carrying a load', 'burdened', 'pile', 'pile on' etc. as evidence suggests that people easily take up and use this language.

It is also important to avoid deterministic language when talking about social factors that contribute to neglect. It is important to include clear statements of probability when using the metaphor, and not to overstate an absolute causal relationships between social factors and neglect. For example 'the weight of things like poverty and violence can overload a person's mental and emotional capacity to manage stress' rather than 'the weight of things like poverty and violence overloads a person's mental and emotional capacity to manage stress'. (Note the absence of can in the second sentence.)

Here's a basic animation to illustrate the metaphor:

<https://www.youtube.com/watch?v=ETP7TcbC2g0&list=PLqA6Q-vvA4sNtS7AOONhiXoNsHIAhTBJG&index=3&t=0s>

Tipping the scales



Metaphor

Think of a child's development as a scale. The way the scale ends up tipping is like the outcome of the child's development, so we want it to tip towards the positive side. Positive things like supportive relationships get loaded on one side and negative things like abuse, neglect or community violence get stacked on the other. The goal of every community is to have development tip positive for as many kids as possible. To do this we can offload as much weight as possible from the negative side and we can stack as many factors on the positive side as is possible. This is called stacking the scale. We also know that we can give kids support early to help them develop coping skills — these skills push the balance point over to one side and make the scale harder to tip negative and able to bear more negative weight and still tip positively. This is what resilience is.

What it does

This metaphor can offer a powerful explanatory tool to describe how and why the contexts, experiences, and environments in which children live and grow shape their developmental outcomes. The metaphor can be used to make the following points:

- o Children's developmental outcomes and individual differences are the product of the weight applied by different risk and protective factors, different genetic starting points, and different positions to which environments and experiences slide these starting points.
- o There are multiple types of factors that influence developmental outcomes (e.g. families, schools, society, government etc.). In particular, access to resources can affect the way the scale tips.
- o Protective factors can buffer the effect of risk factors — but only to a certain extent. Negative experiences stacked on one side of the scale can be buffered if enough positive weight is added to the other side of the scale.
- o Resilience is a positive outcome despite it being produced by negative weight on the scale.
- o Outcomes can be improved in a number of ways but there are periods when this is easier to do than others (eg when children are younger).

Here's a basic animation to illustrate the metaphor:

<https://www.youtube.com/watch?v=EW20A962wd4&list=PLqA6Q-vvA4sNtS7AOONhiXoNsHIAhTBJG&index=7&t=0s>

And this is a longer animation to illustrate the metaphor. It also brings in many of the other metaphors too! <https://www.albertafamilywellness.org/resources/watch/brains-journey-to-resilience>

Be careful to emphasise that the goal of development is to tip the scale in a positive direction (not

Metaphors summary booklet

to create balance). Use illustrations, or demonstrate through gestures and props, the process by which negative weight can be counterbalanced by stacking positive factors.

Further Background Reading

Background to the science

Alberta Family Wellness Initiative Resources. Retrieved from: <https://www.albertafamilywellness.org/>

AFWI Brain Story Certification Course. Retrieved from:
<https://www.albertafamilywellness.org/training>

National Scientific Council on the Developing Child (2007). *The Timing and Quality of Early Experiences Combine to Shape Brain Architecture: Working Paper No. 5*. Retrieved from www.developingchild.harvard.edu

National Scientific Council on the Developing Child (2004). *Young Children Develop in an Environment of Relationships: Working Paper No. 1*. Retrieved from www.developingchild.harvard.edu

National Scientific Council on the Developing Child (2005/2014). *Excessive Stress Disrupts the Architecture of the Developing Brain: Working Paper No. 3*. Updated Edition. Retrieved from www.developingchild.harvard.edu

Center on the Developing Child at Harvard University (2011). *Building the Brain's "Air Traffic Control" System: How Early Experiences Shape the Development of Executive Function: Working Paper No. 11*. Retrieved from www.developingchild.harvard.edu

Center on the Developing Child at Harvard University (2015). *Supportive Relationships and Active Skill-Building Strengthen the Foundations of Resilience: Working Paper No. 13*. Retrieved from www.developingchild.harvard.edu.

Metaphors summary booklet

Background to the development of the metaphors

Lindland, E. & Kendall-Taylor, N. (2013). 'No idea how that works or what you would do about it ...': Mapping the gaps between expert and public understandings of child maltreatment. Washington, DC: FrameWorks Institute.

Fond, M. Haydon, A. Kendall-Taylor, N., (2015) Communicating Connections: Framing the Relationship Between Social Drivers, Early Adversity, and Child Neglect. Washington, DC: FrameWorks Institute.

'Seeing Context through Metaphor: Using Communications Research to Bring a Social Determinants Perspective to Public Thinking about Child Abuse and Neglect' Kendall-Taylor, N., Stanley, K. (2018) *International Journal of Environmental Research and Public Health*, 15(1), 152;