

A resource highlighting the importance of using 'serve and return interactions to enhance curriculum learning'.



Using serve and return interactions to support children's learning and development

Without question, the role of the enabling adult is central to the effectiveness of the Curriculum for funded non-maintained nursery settings in Wales. The summary provided in the curriculum of the role of enabling adults provides an overview of many of the ways that the adults in childcare settings support children's learning, informing us that we can have a positive impact on children's well-being, set examples for learning, and help children's emotional regulation. A key ingredient to this is the back-and-for interactions that occur between the child and the attentive enabling adult. It is these back-and-for interactions that the Harvard Center on the Developing Child term **serve and return** interactions.

What are serve and return interactions?

The term, serve and return interactions is a metaphor to help us remember the important role our interactions with children have on their brain development. If we think of a tennis or table-tennis match, a serve is sent in one direction, and the return is sent back to the initiator who can send back another return of their own. In a similar way, from the time children are babies, if we as adults are attentive to their 'serves', the babbling or cooing noises they make, and provide a timely return we are helping their development of language, social interactions and building the emotional and cognitive skills of the brain that will help with later brain development and learning. As we develop and mature, our learning builds on what has gone before and therefore frequent opportunities for serve and return interaction helps every child with their learning journey, as this [short video outlines](#).

Three Core Concepts in Early Development

2 Serve & Return Interaction Shapes Brain Circuitry

NATIONAL SCIENTIFIC COUNCIL ON THE DEVELOPING CHILD
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The great thing about serve and return interactions is that these can be fun and capacity building for children and adults alike.

What do I need to know to support learning using serve and return?

Firstly, engaging with children this way is supported by a wealth of science and research data. If you interact with children in your setting using serve and return interactions, you are promoting their healthy development. As humans, we have evolved to expect and to need responsive relationships and this is a key reason why the role of the enabling adult is so important in the curriculum. When a child 'serves' but there is a void of a return interaction, the child faces the double negative of not receiving a positive stimulating response; and this lack of response elevates stress hormones in the child's body.

As the curriculum outlines, relationships matter. Serve and return interactions that are engaging and responsive to the child's interests, fascinations, and teachable moments will stimulate further engagement, deeper and more meaningful connections, and extend language learning opportunities for children.

It is important to understand that not all children have opportunities to engage in serve and return interactions in their environments. We still have work to do to share the importance of this type of interaction with parents across Wales. In the busyness of life, and with the constant interrupting factors like hand-held devices, it is even more important that we model and share opportunities for serve and return interactions with parents, and particularly for the children in our settings. Other disrupting factors include toxic stress situations, such as those outlined in the Adverse Childhood Experiences Hub Wales' [Trauma Informed](#) framework. These types of situations and behaviours negatively impact on parent and carers ability to engage with children positively in a serve and return type way.

How might I bring serve and return interactions into my work?

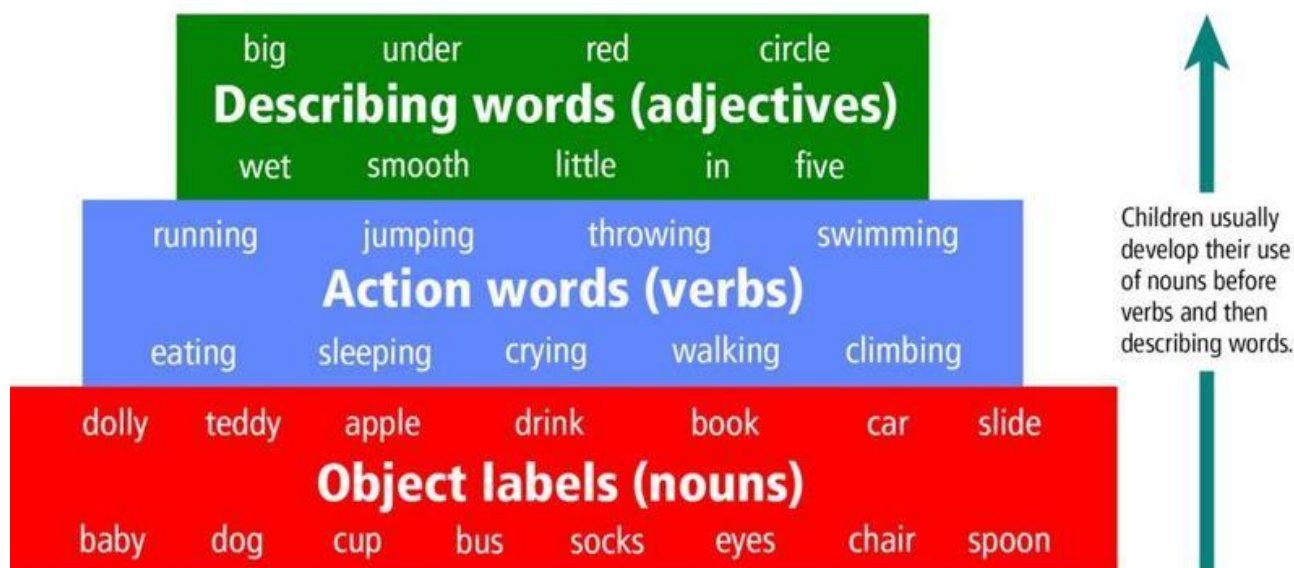
Notice the child's serve and share the focus of the attention with the child.

What has interested the child? Are they moving or making a new sound or facial expression? These are how subtle the serves can be. They can be more explicit too, such as when a child is keen to tell you something important to them. The more we notice the serves, the better we can choose and time our responses to them.

Return the serve with opportunities to extend the moment with the child.

Our body language, timing and response is the key ingredient to making serve and return work effectively for the child. Can we demonstrate our interest in their fascination? Can we choose our words effectively to open or expand a conversation about what the child is interested in? Can we move with the child towards the object of interest, or bring this to the child? If we can, we have extended the learning opportunity, and through being interested and responsive, we have demonstrated to the child that they matter supporting their emotional well-being.

Use serve and return to extend language development



As we know, developing children's communication is vital to support their play, learning, and development. As we learn we develop our language in a hierarchy of word functions, with nouns coming before verbs and adjectives following. By responding to a child's serve, we can take the teachable moment to extend their vocabulary and understanding of the world around them. If the child has already learnt the name of the object they are interested in, can we enrich their awareness of how to describe it in more detail with our 'returns' about what they see, or how something feels? Every time we do this, we create a new 'learning circuit' in the brain, a cluster of neurons that make a connection and can be used to develop further learning. 'Neurons that fire together wire together' (Hebb, 1949 cited in Keysers and Gazzola 2014).¹

Take turns and wait

We must give children time to respond. One of the challenges for adults with depression and anxiety is they tend to 'under-return' by missing the key moments to engage with the child, or by 'over-returning', and by not giving the child space to hear, process the sounds, think, and respond these adults can overwhelm a child. Think back to any rapid-fire questions you have ever faced, was it the complexity of the questions that baffled you, or the speed at which you were asked to respond? More often it is the latter.

By waiting, you also demonstrate that you are interested, you are making time for the child and allowing them to have their own turn. Not only does this extend serve and return interactions, but it helps social development as children build their understanding of the turn-giving nature of conversation and interactions between people.

¹ Keysers, C. and Gazzola, V. (2014). Hebbian learning and predictive mirror neurons for actions, sensations and emotions. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 369(1644), p.20130175. doi:<https://doi.org/10.1098/rstb.2013.0175>.

Practise endings and beginnings

Children will signal when they are ready to move on or have lost interest in the interaction. Here, we can either step back from interactions and focus again on observing the children's interests or choose to reinvigorate their interactions with us as the situation calls for. It is here that the skill of your practice is important. Knowing the children, understanding what the learning opportunities are, and how you support these is vital to a positive ending and the opportunity to begin another, or a new interaction.

Remember, every positive serve and return interaction helps children's development.

How do we know this makes a difference?

From research around the world, we can demonstrate that the serve and return approach helps learning, emotion, and overall development. The scientists can use brain-imaging and new technologies to prove what we do is effective. Here are a few indicators or how serve and return helps children to develop.

1. Through brain imaging, Romeo et al. demonstrated that conversational turn-taking between adults and children promoted brain activity in key areas of the brain. This accounted for almost half of the relationship between the language children hear and their verbal ability.

"Neuroimaging revealed a neural mechanism by which language experience may influence brain development; namely, children who experienced more conversational turns exhibited greater activation in left inferior frontal regions (Broca's area) during language processing, which explained nearly half the relationship between children's language exposure and verbal abilities."²

2. There is a direct link between sensitive and timely caregiving interactions (serve and return) and the infant's brain volume. When serve and return interactions are less, the brain area associated with language in infants is smaller. (Sethna et al, 2017)

"Variations in typical mother-infant interactions are associated with differences in infant brain volumes. Specifically, we found that lower maternal sensitivity was correlated with smaller subcortical grey matter volumes"³

3. Ramírez-Esparza et al, (2014) suggests that infant language development is helped by one-on-one interaction with adults. This promotes social understanding and language development.

"The quality of the interactions between parents and their children, measured with gesture and speech, is associated with advanced language development ... Infants'

² Romeo, R.R., Leonard, J.A., Robinson, S.T. et al. (2018). Beyond the 30-million-word gap: Children's conversational exposure is associated with language-related brain function. *Psychological Science*, 29(5), 700-710.

³ Sethna, V., Pote, I., Wang, S. et al. (2017). Mother-infant interactions and regional brain volumes in infancy: An MRI study, *Brain Structure and Function*, 222, 2379-2388

language learning is enhanced in one-on-one social contexts, perhaps because these contexts allow more contingent social interaction between adult and child. ... Evidence is accumulating to indicate a greater role for social interaction and social contingency in language learning.”⁴

Summary

As highlighted in this summary, our interactions with children are the essence of what makes the role of the enabling adult so important in the Curriculum for funded non-maintained settings. Our ability to observe the children, and ‘tune-in’ to the moments where serve and return interactions add value to the teachable moment is incredibly important. Instead of thinking of this as just another chat with a child in the setting, think about all the remarkable brain-building work your responses have and practise you serve and return interactions regularly; the children need you to be that consistent and enabling adult who does this because in some situations, you might be the only one.

Additional explainer – Serve and return interactions in play

⁴ Ramírez-Esparza, N., García-Sierra, A. & Kuhl, P.K. (2014). Look who’s talking: Speech style and social context in language input to infants is linked to concurrent and future speech development. *In press: Developmental Science*, 17(6), 880-91



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