

## Cognition and Executive Function

### Why is the Cognition and Executive Function domain important to measure in young children?

Cognition refers to the mental skills that are critical for learning and development. Executive function refers to a specific set of mental skills that enable us to pay attention, plan, think creatively, problem solve, and exercise self-control. Executive Function also helps us to regulate our behaviour and emotions in a positive or goal directed way. A child's capacity to learn relies heavily on their Cognition and Executive Function (CEF) skills.

Additionally, CEF in the pre-primary years is predictive of adult well-being, influencing factors such as career success, physical health, and even social life. CEF develops and matures from birth to early adulthood. However, the most rapid development occurs during the pre-primary years, making this a critical period to measure and promote these skills.

### How are children in SA doing?

Data from the Thrive by Five Index found that overall, scores were relatively low, with more than half of children classified as *Falling Behind*.

The figure shows the distribution of children who were *On Track*, *Falling Behind*, or *Falling Far Behind*.

#### By income group:

There were substantial differences in the scores across income quintiles. The poorest children (from quintile 1) had

a higher chance of *Falling Behind* compared to children in the highest income group (quintile 5). This is expected given that socio-economic status is known to be a predictor of CEF. More specifically, for quintiles 1, 2, and 3, more than half the sample are *Falling Behind*, whereas for quintiles 4 and 5, more than half are *On Track*. This highlights the gap between the lowest three quintiles and the highest two quintiles. However, there were notable variations of scores within each quintile, suggesting that other factors could be influencing CEF.

#### By sex:

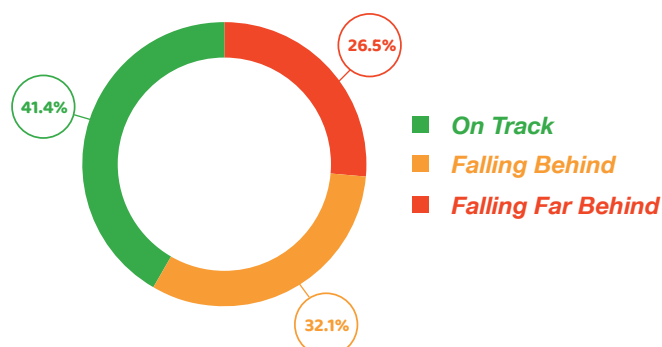
The data showed significant sex differences with girls outperforming boys – something that is commonly seen in research on cognition in young children. For girls, 44% of the sample are *On Track* and only 23.7% are *Falling Far Behind*. This compared to boys where only 38.8% are *On Track* and 29.5% are *Falling Far Behind*.

### What are the implications of these findings?

The results from the Thrive by Five Index confirm that the poorest children are at the highest risk for not meeting the standards for CEF and emphasise their vulnerability, even when attending early learning programmes. Without intervention, the gap between those from high and low socio-economic settings will grow exponentially larger as they go through school, setting children on a poor trajectory.

Encouragingly, the wide range of scores within each quintile suggests that there are factors other than socio-economic

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% Children *On Track*, *Falling Behind* and *Falling Far Behind*



status that influence CEF. What this means is that under the right circumstances, it is possible to close the performance gap between the quintiles.

## What actions can we take?

Before we can implement programmes to help children meet the standards for CEF, we need to demystify the terminology. The term Cognition and Executive Function is mostly used in academic circles, and is very seldom heard or understood by caregivers or even early childhood development (ECD) practitioners. Information and education on what CEF entails, its importance, and how to promote or practise CEF skills should be made widely available. This can be done through public messaging and adding it to ECD practitioner qualifications and training. If ECD practitioners understand these skills, they will know how to choose familiar activities that develop children's CEF. For example, matching games are commonly used by teachers and caregivers and are known to promote executive function. Training CEF does not require expensive or new interventions; it can be done

through everyday activities and tasks that children are already required to do:

- Active games that involve motor planning, a set of rules and strategy such as dancing and ball games;
- Toys, equipment, and play plans for imaginative play;
- Story telling sessions where children are encouraged to repeat a story or come up with a story themselves;
- Singing songs that repeat or add on, and songs that have actions that accompany specific words.

### Priority actions

- Provide widespread access to information on CEF to demystify these terms;
- Strengthen the CEF domain within the National Curriculum Framework for Children Birth to Four years, and upskill trainers within Resource and Training Organisations nationally to train on this;
- Train caregivers and ECD practitioners to implement these skills in their daily activities with children.



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Her research focuses on learning and cognition in preschool age children from low-income settings.

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