

## Understanding the Role of Caregiver-Child Pedagogical Questioning in Singaporean Children's School Readiness and Achievement

### Why is this study needed?

- According to the Nurturing Early Learners (NEL) Framework, effective questioning is key to fostering children's cognitive development (MOE, 2022).
- However, not every child enters kindergarten or primary school ready to explore and discover when facing a question or a problem (Kirschner et al., 2006).
- Variations in early caregiver-child conversations have been shown to predict multiple aspects of children's school performance, such as expressive language (Hirsh-Pasek et al., 2015).
- One practice often associated with high-quality caregiver-child conversations is questioning (Bornstein et al., 1992).

**Pedagogical questions (PQs)** aim to teach, rather than request information or make a point.

- Research shows that they are more effective in facilitating children's learning and exploration than other types of questions and instructions (Yu et al., 2018). Some examples of PQs include, "What does that button do?", "How can we share these toys among four friends?" and "Why is taking the MRT better for the environment than driving?"
- The frequencies of PQs in caregiver-child conversations differ across the family's socio-economic status (SES) and cultural background (Yu et al., 2019).



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### What is this study about?

This project examined how caregivers can ask PQs to help young children learn through analysis of parent-child conversations, by both observing conversations as they happen and through an intervention implemented at KidsSTOP™ of the Singapore Science Centre. A total of 87 parent-child pairs with children between 4 to 8 years of age were randomly assigned into two groups



#### Experimental Group

Encouraged to use the "Little Footprints" activity kit provided when exploring the exhibits



#### Control Group

Explored the exhibits independently as they normally would

The activity kit included stories, activities and interactive games like building battery-powered toy cars that parents can do with their kids. They were themed around saving the Earth and encouraged parents to ask PQs like "Why do you think Earth is sick?", "What are some ways we can help Earth?"

## What did we find?

- Children's learning was measured in terms of their understanding of the theme through pre-intervention and post-intervention interviews.
- Interview questions covered environmental knowledge, recycling principles, sustainable lifestyle choices, global warming, and general knowledge of the ecosystem.
- Results showed that the time parents spent asking children PQs when visiting an exhibit at KidsSTOP™ predicted children's learning of environmental knowledge from that visit.
- Providing an activity kit promoted children's learning through parental PQs because parents were then able to ask more meaningful questions which led children to engage more with the material and learn better.

## What does it mean for teaching and learning?

- The NEL Framework highlights the importance of teachers using effective questioning to promote young children's vocabulary growth, classroom engagement, and higher order thinking.
- We found that in an informal learning context, intervention programmes that aim to guide parents to ask meaningful questions help children's learning.



- Teachers can encourage and guide parents to use pedagogical questioning while interacting with their children at home, such as during playing or book reading. For example, during mealtimes, parents may ask "*What happens to food after we swallow it?*" or while reading an animal picture book "*Why do birds fly but lions don't?*"

To learn more, scan the QR codes for CRCD and NIE Child Lab websites:



### References

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