



Cross-Ethnic Differences in Self-Regulation and Academic Achievement among Young Children in Singapore

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This research brief summarizes findings from Chen and Yeung's (2023) original research, entitled "Self-regulation and academic achievement among Singaporean young children: A cross-cultural comparison in a multicultural Asian society" and published in the International Journal of Behavioral Development. The authors examined cross-ethnic differences in the development of self-regulation and academic skills among young children in Singapore and investigated the longitudinal relations of different aspects of self-regulation to academic achievement in this multicultural country.

Background

Self-regulation refers to integrated processes that aim at goal attainment (McClelland et al., 2010). Executive function is a set of self-regulatory skills involving goal-directed, top-down, conscious control of thoughts, actions, and emotions (Zelazo et al., 2005). Executive function includes the cognitive aspects (called "cool" executive function) and the affective aspects (called "hot" executive function). Executive function during early childhood predicts academic skills such as literacy and mathematics (Blair & Razza, 2007; Bull & Scerif, 2001).

Cultural contexts play a part in the development of self-regulation. A large body of research has shown that children from East-Asian societies (e.g., mainland China, Hong Kong, and South Korea) have more advanced cool executive function (e.g., inhibition,

shifting, and working memory) than their counterparts from Western countries due to different social systems and cultural values (see Schirmbeck et al., 2020 for a review). Chinese children have also shown an advantage in hot executive function (e.g., Delay of Gratification) over their Western counterparts (Qu et al., 2012; Ding et al., 2021).

Ethnic Chinese, Malays, and Indians in Singapore hold distinct traditional values, and the parents have different expectations for child development. Chinese parents emphasize emotional restraint and impulse control and have higher expectations for their children's self-control (Rao et al., 2003). Malay parents value harmony and happiness rather than achievement and competition during child rearing, and Indian parents encourage interconnectedness and interdependence and have lower expectations for their children's emotional control, independence, and autonomy (Salehuddin & Winskel, 2016). However, little is known about cross-ethnic differences and consistencies in the development of different aspects of self-regulation and their longitudinal relations to academic skills among Singaporean children from different cultural backgrounds.

Data & Methods

Chen and Yeung (2023) analyzed longitudinal data collected from 2,527 children (49.0% girls) in Singapore, consisting of 70.7% Chinese, 16.9% Malays, and 12.4% Indians. They were a subset of the larger, nationally representative sample of participants in the Singapore Longitudinal Early Development Study (SG LEADS; Yeung et al., 2020; Yeung et al., 2022). These children aged 3 to 6 in Wave 1 and were assessed on working memory (forward and backward digit span) and Delay of Gratification. The primary caregiver rated the child's self-control. Approximately two years later, these children completed standardized tests of achievement in reading and mathematics in Wave 2.

Results

Different aspects of self-regulation develop rapidly with age during early childhood. Children from higher socioeconomic status (SES) families (e.g., higher education and higher income) displayed better self-regulation, including a greater ability to delay gratification, more advanced working memory (e.g., larger forward and backward digit span), and stronger self-control in daily lives, compared to children from middle- and low-SES families.

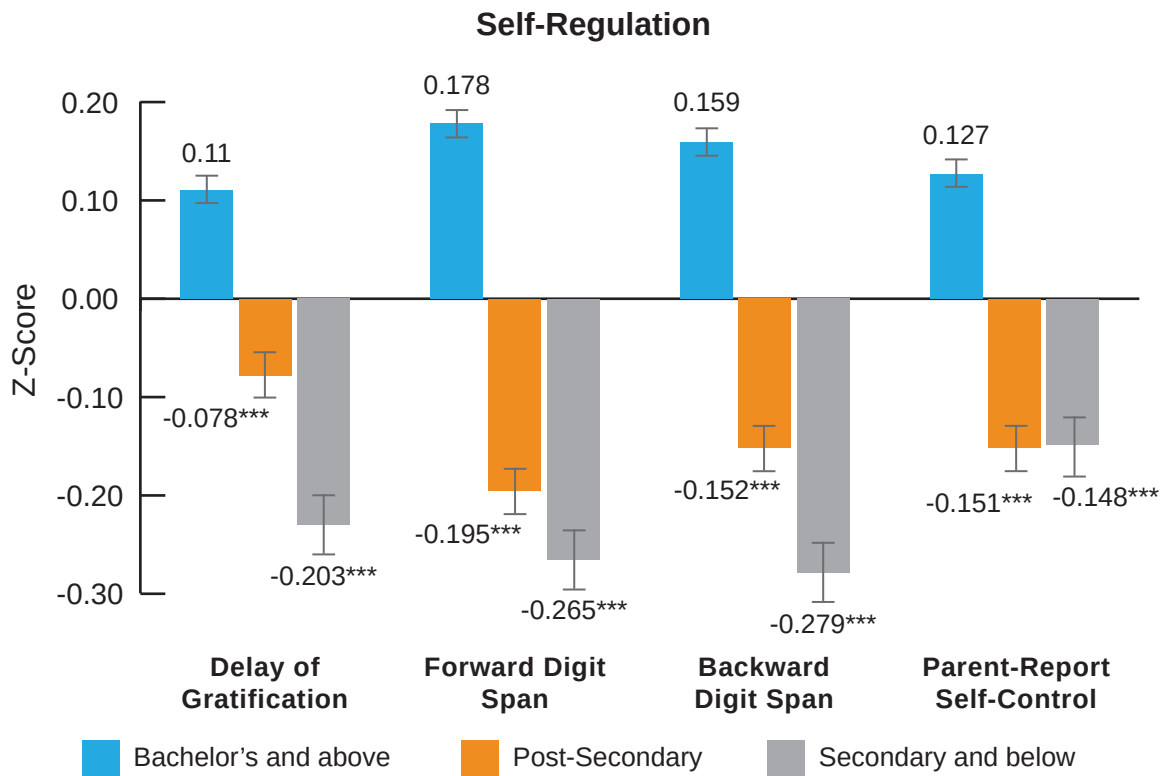


Figure 1. Self-regulation during early childhood by parental education in Wave 1.
Note. ***the gap behind the High-Education group is significant at the .001 level.

After controlling for SES, cross-ethnic differences were still observed in self-regulation. Ethnic Chinese children outperformed their Malay and Indian counterparts in working memory and Delay of Gratification tasks during the preschool years. Chinese children generally started to delay gratification at age 4, while Malay and Indian children started to delay gratification at age 6. Notably, parent-reported child self-control was comparable across ethnic groups despite the cross-ethnic gaps in direct assessments of executive function, possibly due to differential parental expectations for children's self-control. Developmental trajectories of different aspects of self-regulation with age and ethnicity are detailed in Chen and Yeung's (2023) article. The findings support the literature that Malay and Indian children have delays in developmental milestones compared to Chinese children (Salehuddin & Winskel, 2016), and the authors extend the findings to the development of self-regulation.

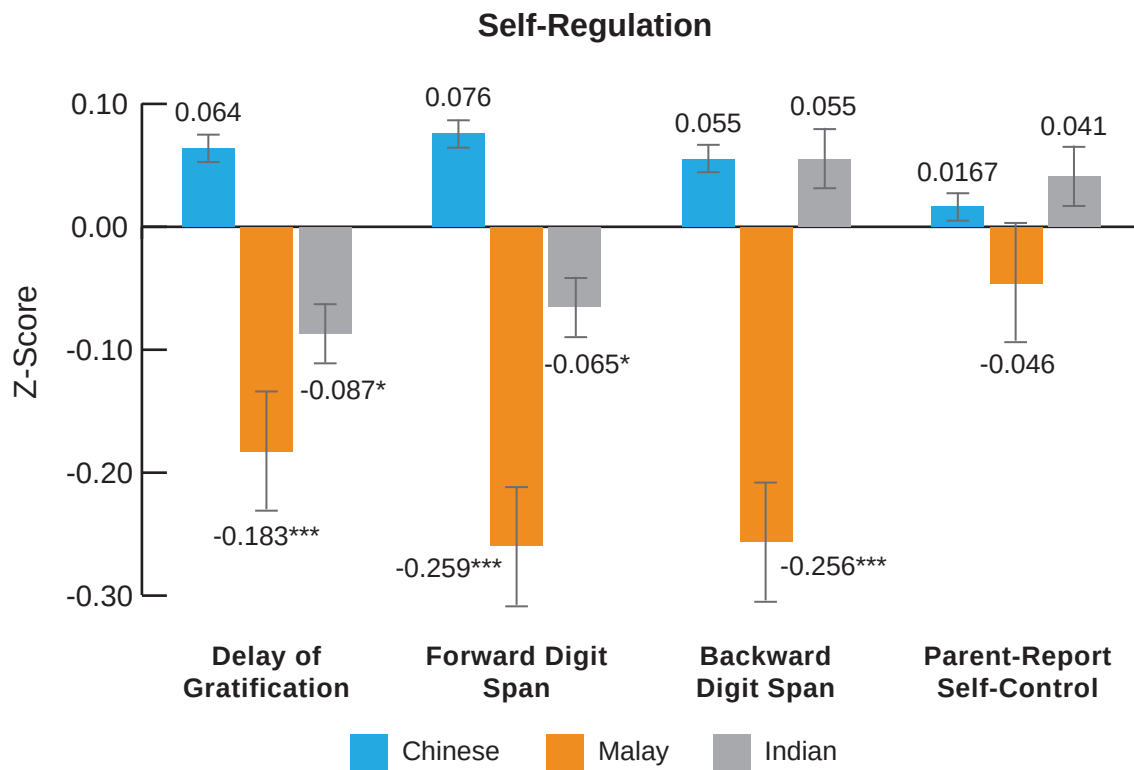


Figure 2. Self-regulation during early childhood by ethnicity in Wave 1.

Note. ***the gap behind Chinese children is significant at the .001 level. *the gap behind Chinese children is significant at the .05 level.

Approximately two years later, cross-ethnic differences were observed in children’s academic skills. Chinese children outperformed their Malay and Indian counterparts in standardized tests of achievement in reading and mathematics. Indian children outperformed aged-matched Malay children in the two tests of mathematical skills. Indeed, Malay children in Singapore have shown achievement gaps in core subjects of

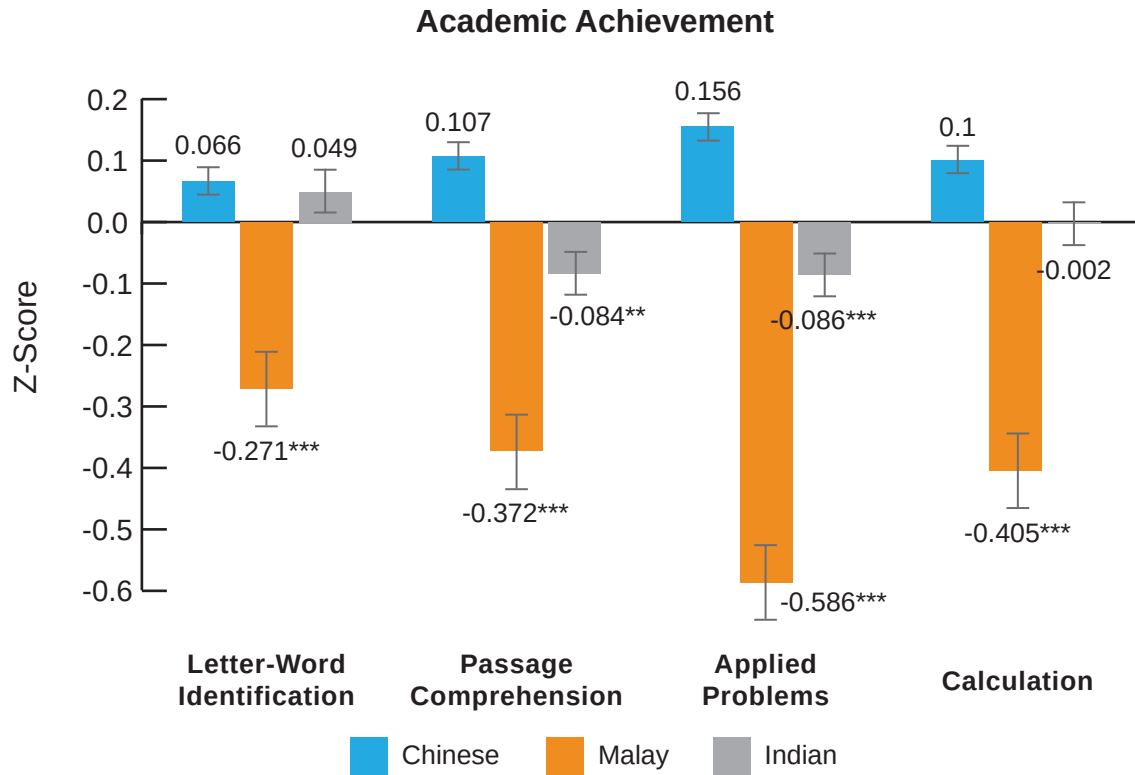


Figure 3. Reading and mathematical skills by ethnicity in Wave 2.

Note. ***the gap behind Chinese children is significant at the .001 level. **the gap behind Chinese children is significant at the .05 level. *the gap behind Chinese children is significant at the .10 level

English, Science, and Mathematics behind Chinese and Indian children since earlier years of education, and the gaps are widened in their later years of schooling (Juhari, 2022).

Finally, working memory during early childhood was a robust predictor of children’s reading and mathematical skills measured two years later, across ethnic groups. Delay of Gratification also indirectly predicted greater academic achievement in reading and mathematics through working memory across children from different cultural backgrounds.

In sum, the development of self-regulation is a malleable process that is sensitive to social and cultural contexts. The developmental gaps in cognitive and affective aspects of executive function during the preschool years can contribute to achievement gaps later in life. It is essential to nurture children’s executive functioning (such as working memory and the ability to delay gratification) during early childhood so as to promote their school readiness and narrow the gaps in academic achievement in formal educational settings.

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