Pertanika Proceedings 2 (1): 83 - 87 (2026)

PERTANIKA JOURNALS

PERTANIKA PROCEEDINGS

Journal homepage: http://www.pertanika.upm.edu.my/

Bilingual Development and Cognitive Effects: Japanese Preschoolers' English Learning Experiences in Singapore

Aya Kutsuki[1]* and Hideyuki Taura[2]

[1]*Kobe Shoin University, 657-0015 Hyogo, Japan*
[2]*Ritsumeikan University, 603-8577 Kyoto, Japan*

ABSTRACT

Bilingual development has been linked to advantages in executive functions, but evidence from children with limited bilingual exposure remains scarce. This study examined the relationship between language development and executive functions in early bilingual second-language acquisition. Participants were 122 Japanese-speaking children (67 bilingual, 55 monolingual) attending a Japanese-English bilingual kindergarten in Singapore. Both groups showed comparable Japanese development, indicating smooth first-language growth among bilinguals. The findings further suggest that second-language learning can support first-language development. In cognitive tasks, bilingual children showed greater age-related improvement in reaction time on the Simon task, indicating better monitoring, which was linked to English proficiency and kindergarten experience. These results suggest that even limited second-language exposure in early childhood may relate to executive functions and first-language development, highlighting the need to study how bilingual experience shapes language–cognition links.

Keywords: Executive functions, Japanese-English bilinguals, language development, monitoring, preschoolers

INTRODUCTION

Bilingual children are often reported to show advantages in executive functions (EFs), such as inhibitory control and monitoring (Carlson & Meltzoff, 2008). However, reviews have reported inconsistent effects and the extent of this advantage may vary depending on factors such as language proficiency and age (Paap & Greenber, 2013).

ARTICLE INFO

Article history:
Received: 30 December 2025
Published: 06 March 2026

DOI: https://doi.org/10.47836/pp.2.1.014

E-mail addresses:
Aya Kutsuki (ayakutsuki@shoin.ac.jp)
Hideyuki Taura (htaura@fc.ritsumei.ac.jp)
* Corresponding author

e-ISSN: 3083-9475

© Universiti Putra Malaysia Press

Most studies have focused on native or early bilinguals, often overlooking children with more limited bilingual exposure (Montrul, 2008). This study examines Japanese preschoolers in Singapore, who speak Japanese at home but encounter English mainly in kindergarten, to explore links between bilingual development and EF. Because bilingual outcomes depend on proficiency and exposure (Blom et al., 2014; Luk & Bialystok, 2013), this setting—where Japanese remains dominant in the community (Chang & Lim, 2024)—offers a distinctive context to investigate how bilingual patterns shape cognitive development.

METHODS

The study analysed 159 data points from 122 Japanese preschoolers aged 3–6 years (67 bilingual, 55 monolingual). An LMM (Linear Mixed Model) was used to account for repeated participation. Bilingual children attended a Japanese–English kindergarten in Singapore for approximately 5 hours daily (M = 27.71 months, SD = 10.76, range = 0.84–46.7), while monolinguals were from Japanese-speaking families in Japan.

Children were tested individually in quiet kindergarten rooms. Inhibitory control was measured with the Simon task: incongruent trials indexed suppression of automatic responses, while overall RT reflected monitoring ability. Language proficiency was assessed using the Picture Vocabulary Test–Revised for Japanese (PVJ) and the Peabody Picture Vocabulary Test–Revised for English (PVE).

RESULTS AND DISCUSSION

Language Development English Development

The bilingual children's English acquisition was related to age and kindergarten experience but not Japanese proficiency. These children were learning English independently of their developing Japanese. They were still in the early stages of the development of both languages.

Japanese Language Development

No significant differences in Japanese proficiency (PVJ) were found between bilingual and monolingual children, indicating effective first language development in bilingual children (Figure 1). Interestingly, children with higher English proficiency (PVE) showed faster Japanese vocabulary growth (Figure 2), suggesting different stages of bilingual development and possibly reflecting differential cognitive interplay. While Japanese proficiency may influence cognitive abilities, the results did not reflect this, likely because Japanese is learnt in more consistent, everyday contexts, leading to fewer individual differences.

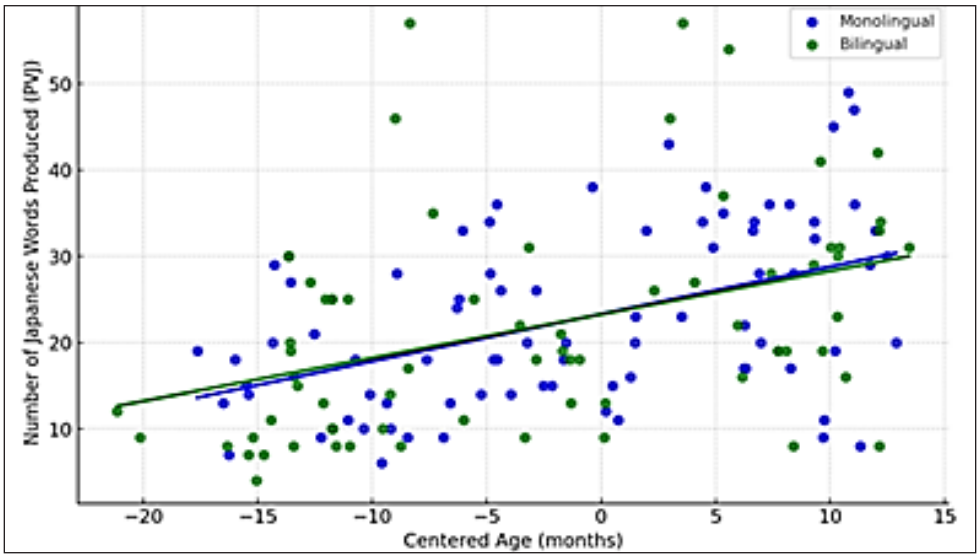

Figure1. Comparison of Japanese development between bilingual and monolingual

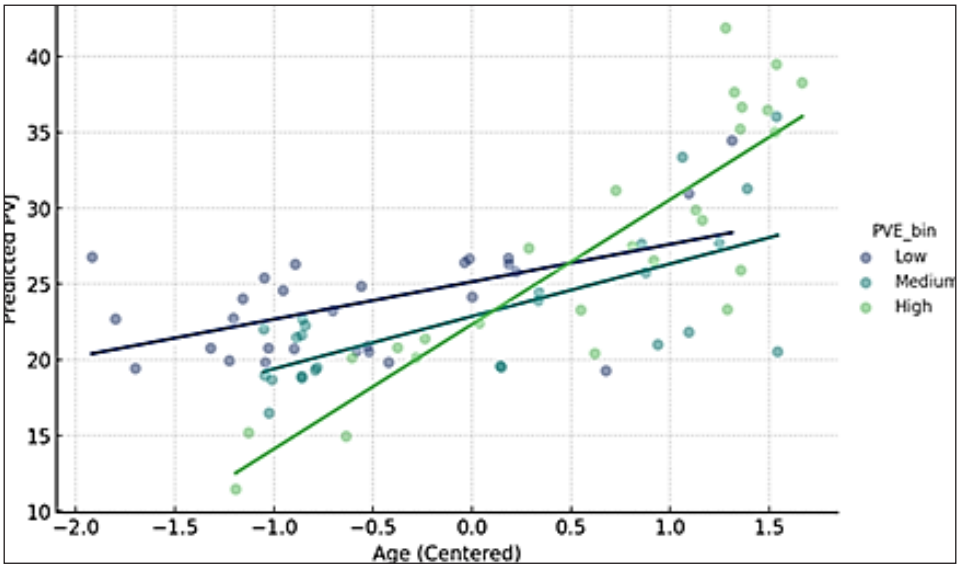

Figure 2. Relationships between English proficiency and Japanese development

Executive Functions Group Comparison

Group Comparison: No significant differences in inhibitory control were observed between the groups, likely because the children did not switch between languages in their daily

environment, and their English proficiency was not very high. However, the bilingual children exhibited faster reaction times (RT), indicating better monitoring. This aligns with Martin-Rhee & Bialystok (2008), who found enhanced monitoring in bilingual children. Our results differ from studies reporting inconsistent bilingual advantages (Lehtonen et al., 2018; Paap & Greenberg, 2013). However, such variability may have been attributed to differences in usage patterns and context (Blom et al., 2014), as well as to our participants' limited exposure and developing English proficiency.

Thus, no group-level advantage in inhibitory control emerged, whereas the monitoring advantage in children with higher English proficiency fits findings that monitoring is the first EF component to improve under limited but intensive L2 exposure (Purić et al., 2017) and accords with meta-analytic evidence that bilingual effects are most robust in monitoring and shifting (Yurtsever et al., 2023).

Analysis within Bilinguals

Children with higher English proficiency and longer bilingual kindergarten experience demonstrated better monitoring. The findings suggest that two years of kindergarten exposure and a three-year-old English vocabulary level are needed to see this effect. This is consistent with Purić et al. (2017), who suggested that some aspects of EFs rather than inhibitory control improve in immersive second language contexts. Taken together, these results may indicate that the degree of bilingual experience—not simply bilingual status—critically shapes which components of executive functions are enhanced.

CONCLUSION

This study examined executive functions in relation to bilingual language development in Japanese preschoolers learning English in a bilingual kindergarten in Singapore. The findings suggest that early second-language learning can influence cognitive development, specifically monitoring but not inhibitory control. The results also indicate an interplay between developing cognitive abilities and bilingual language acquisition, with a certain threshold of language ability and experience required for cognitive effects to emerge.

This highlights the importance of sustained bilingual education in early childhood, fostering cognitive skills and supporting the interdependent development of languages. Importantly, even limited bilingual exposure appears to support executive function.

This has implications not only for expatriate children but also for limited or passive bilinguals, suggesting that even a weaker, less-used language may contribute to the development of executive function.

ACKNOWLEDGEMENT

We sincerely thank the children, their parents, the kindergartens, teachers, and research assistants for their essential support. This work was partially supported by JSPS KAKENHI Grant (20K02717 and 15K01784).

REFERENCES

Blom, E., Küntay, A. C., Messer, M., Verhagen, J., & Leseman, P. (2014). The benefits of being bilingual: Working memory in bilingual Turkish–Dutch children. *Journal of experimental child psychology*, *128*, 105-119. https://doi.org/10.1016/j.jecp.2014.06.007

Carlson, S. M., & Meltzoff, A. N. (2008). Bilingual experience and executive functioning in young children. *Developmental Science, 11*(2), 282-298. https://doi.org/10.1111/j.1467-7687.2008.00675.x

Chang, Q., & Lim, S. W. (2024). Navigating the third culture: Comparative case studies of Japanese expatriate students in Singapore and factors influencing English language development. *Migration and Language Education, 5*(1), 2093-2093. https://doi.org/10.29140/mle.v5n1.2093

Lehtonen, M., Soveri, A., Laine, A., Järvenpää, J., de Bruin, A., & Antfolk, J. (2018). Is bilingualism associated with enhanced executive functioning in adults? A meta-analytic review. *Psychological Bulletin, 144*(4), 394-425. https://doi.org/10.1037/bul0000142

Luk, G., & Bialystok, E. (2013). Bilingualism is not a categorical variable: Interaction between language proficiency and usage. *Journal of Cognitive Psychology, 25*(5), 605-621. https://doi.org/10.1080/20445911.2013.795574

Martin-Rhee, M. M., & Bialystok, E. (2008). The development of two types of inhibitory control in monolingual and bilingual children. *Bilingualism: Language and Cognition, 11*(1), 81-93. https://doi.org/10.1017/S1366728907003227

Montrul, S. (2008). *Incomplete acquisition in bilingualism: Re-examining the age factor.* John Benjamins.

Paap, K. R., & Greenberg, Z. I. (2013). There is no coherent evidence for a bilingual advantage in executive processing. *Cognitive Psychology, 66*(2), 232-258. https://doi.org/10.1016/j.cogpsych.2012.12.002

Purić, D., Vuksanović, J., & Chondrogianni, V. (2017). The effects of bilingualism on executive functions and working memory in young adults. *International Journal of Bilingualism, 21*(6), 651-668.

Yurtsever, A., Anderson, J. A. E., & Grundy, J. G. (2023). Bilingual children outperform monolingual children on executive function tasks far more often than chance: An updated quantitative analysis. *Developmental Review, 69,* Article 101084. https://doi.org/10.1016/j.dr.2023.101084