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When children begin to understand hiragana

- Emergent literacy development in Japanese -

Abstract

Although many studies have reported child literacy development, **it still remains unclear when and how toddlers acquire letters well before starting formal education.** We focused on Japanese hiragana letters to investigate (a) when toddlers begin to understand hiragana, and (b) what kind of letters is easily acquired. Our eye-tracking experiment showed that **toddlers at 32-39 months begin to understand hiragana letter-sound mapping.** Moreover, our large-scaled corpus analysis found that different factors such as letter frequency in picture books and visual complexity contribute to the acquisition of hiragana reading and writing. We aim to extend our findings to develop early detection method and letter learning method for children with reading difficulties.

1 Hiragana understanding measured by eye-gaze



- **Participants:** 80 toddlers at 24-48 months of age
- **Method:** Measuring eye-gaze pattern during looking at the screen
- **Analysis:** Calculating looking ratio of target letters

Although toddlers at 32-39 months who could barely read the hiragana letters (Fig.1), they start to understand a letter-sound correspondence (Fig.2).

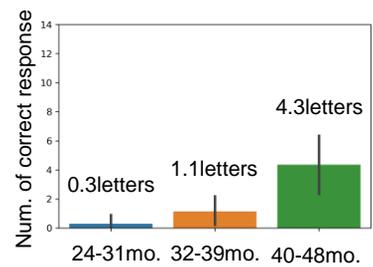


Fig.1 Hiragana reading task

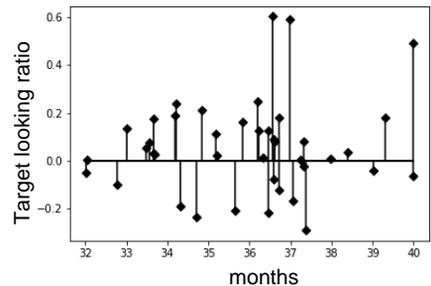
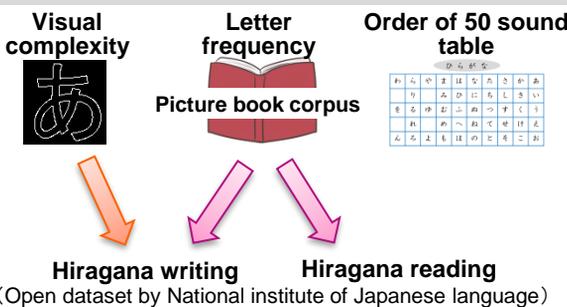


Fig.2 Understanding of letter-sound correspondence (32-39mo.)

2 Factors contributing to hiragana reading and writing acquisition



While hiragana reading acquisition relates to letter frequency in picture books, hiragana writing acquisition relates to visual complexity as well as letter frequency (Fig. 3).

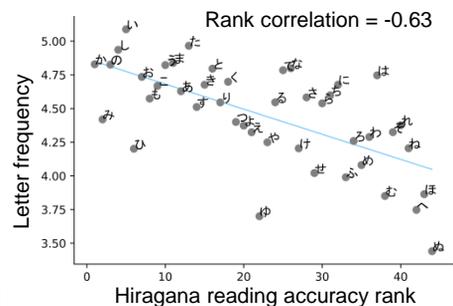


Fig.3 Letter frequency and reading accuracy

References

- [1] H. Higuchi, Y. Okumura, T. Kobayashi, "Acquisition of letter-sound correspondence in Japanese-speaking 2-year-olds: An eye-tracking study" in Biennial Meeting of Society for Research in Child Development (SRCD), 2019.
- [2] H. Higuchi, Y. Okumura, T. Kobayashi "Influence of letter properties for Japanese hiragana reading and writing acquisition" *The Japan Journal of Logopedics and Phoniatrics*, Vol.60 No.2, 113-120, 2019.
- [3] H. Higuchi, Y. Okumura, T. Kobayashi "Influence of letter properties for Japanese katakana reading and writing acquisition" *The Japan Journal of Logopedics and Phoniatrics*(in press).

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