Why is shared book reading effective for children's Theory of Mind development?:
— Frequency analysis of cognitive mental state terms in Japanese picture books —

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Mental state conversations between parents and children play a key role in the development of children's mental state understanding, such as theory of mind (ToM) (Ruffman, Slade, & Crowe, 2002). In addition, since parents often begin picture book reading to their children soon after birth, this is a critical source of linguistic input. Another previous research reported that shared picture book reading frequency between mother and child at five years was associated with improved ToM performance, although frequency at one year was not associated with it (Sato, Horikawa, & Uchiyama, 2016). However, it remains unclear which aspects of picture books effect the ToM development. Our study focuses on frequency of the mental state terms that appear in picture books along ages of children the picture books are written for.

We constructed a corpus of 2244 Japanese children's picture book stories, which were chosen from bestseller lists and librarian-recommendations. First, we created gradual readability measures (or target ages) from infants to six-year-olds for the picture books (Fujita, Kobayashi, Minami, & Sugiyama, 2015). Then, we assessed the frequencies of mental state terms in our corpus, particularly focusing on four types of representative cognitive mental terms, which have strong correlations with children's ToM understanding: think, understand, know, and guess/wonder (Tsui, 2011). The results demonstrated that 1049 of 2244 picture books included such mental state terms. Next, we investigated the frequencies of books for children at a particular age. The following are the percentage of books containing mental state terms: 4.1% (5/122 books), 8.0% (12/150), 16.7% (43/258), 37.0% (121/327), 49.1% (155/316), 61.6% (373/606), and 73.1% (340/465) in the books for ages 0, 1, 2, 3, 4, 5, and 6, respectively (Figure 1). The mean number of mental state terms was 0.1 terms, 0.2 terms, 0.3 terms, 1.2 terms, 1.8 terms, 1.9 terms, and 3.3 terms in the books for ages 0, 1, 2, 3, 4, 5, and 6, respectively (Figure 2). Overall, the picture books for elder children, especially those for five-year-olds and older, contained more mental state terms than the books for younger toddlers. Thus, the result suggests that the frequency of the mental state terms in the picture book used for shared reading is correlated with the ToM development.
Figure 1. Percentage of books containing mental state terms in the books for ages 0, 1, 2, 3, 4, 5, and 6, respectively.

Figure 2. Mean number of mental state terms in the books for ages 0, 1, 2, 3, 4, 5, and 6, respectively.

References

