

Grammatical Production of Event Structure Predicts Narrative Comprehension: Preliminary Evidence from Naturalistic Speech in Cantonese-Speaking Preschoolers

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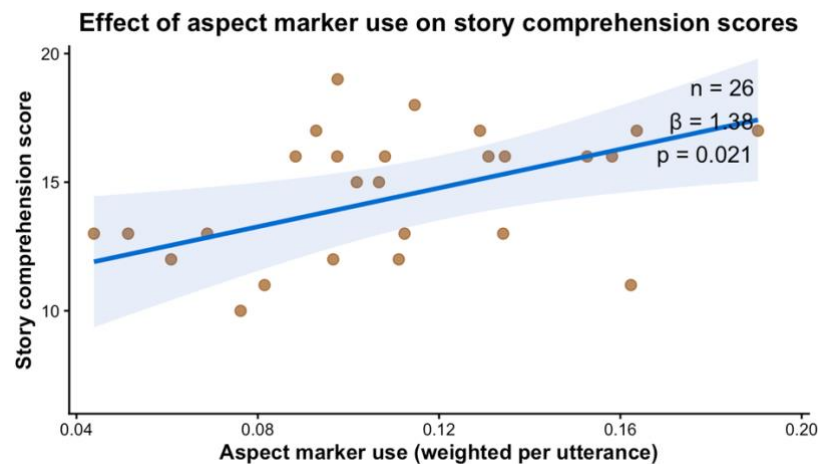
Introduction Narrative comprehension—the ability to process and integrate information across connected discourse—is a developmentally significant yet comparatively understudied domain in child language acquisition. Previous research has shown that expressive language development supports comprehension across discourse-level domains [1], with grammatical production serving as a key indicator. However, many existing studies rely on Mean Length of Utterance (MLU), a global index of expressive grammatical complexity that does not specify which particular grammatical markers children use or how these markers differentially contribute to comprehension [2]. Furthermore, most prior work has relied on controlled experimental tasks; naturalistic mother–child interaction provides a more ecologically valid window into children's expressive grammatical abilities in everyday contexts. Therefore, the present study examined whether a fine-grained grammatical profile derived from naturalistic mother–child interactions predicts narrative comprehension in Cantonese-speaking preschoolers.

Method Naturalistic speech samples were collected from twenty-six typically developing (TD) Cantonese-speaking children ($M_{age} = 4.6$, $SD = 0.24$) over 3–7 days (~2 hours/day) in a home setting and transcribed using the Codes for the Human Analysis of Transcripts system [3]. Mother–child interaction segments were extracted using the combo function in Computerized Language Analysis Programme. A fine-grained, frequency-based grammatical profile—comprising negation, aspect markers, classifiers, and connective markers—was extracted from children's spontaneous speech and used as primary predictors. Maternal grammatical use was congruently coded for exploratory analysis. Narrative comprehension was assessed using the Story Comprehension subscale of the Hong Kong Test of Preschool Oral Language (TOPOL) [4]. Linear regression with exhaustive best-subset selection identified the optimal model predicting children's narrative comprehension from their expressive grammatical profile, with moving-average type–token ratio (MATTR; lexical diversity), nonverbal IQ, age, gender, and data quantity controls as covariates.

Results The optimal model, comprising negation, aspect markers, and connective markers, significantly predicted story comprehension beyond the baseline (adjusted $R^2 = .38$, $F = 4.48$, $p = .01$). Critically, aspect marker use was the sole significant predictor within this model ($\beta = 1.37$, $t = 2.55$, $p = .021$), suggesting a specific grammatical contribution to narrative comprehension. Model fit did not improve significantly when maternal grammatical use was additionally entered as a predictor.

Discussion and Conclusion These preliminary findings suggest that children's naturalistic production of aspect markers is associated with narrative comprehension ability, extending previously reported sentence-level links between aspect and comprehension to the discourse level [5]. The specificity of this association—where aspect markers predicted comprehension independently of general lexical diversity and nonverbal ability—is consistent with theoretical accounts linking grammatical encoding of event structure and temporal sequences in production to event model construction during discourse comprehension [6]. The absence of a concurrent effect of maternal input may echo longitudinal evidence that caregiver grammatical input may influence children's narrative development with a temporal lag [7]. Future work with larger samples and longitudinal designs is needed to establish the robustness of this production–comprehension, to examine how maternal input effects unfold over developmental time, and to evaluate whether naturalistic aspect markers use can serve as an ecologically valid indicator of narrative ability.

Figure



References

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