

Children's use of gestures in telling stories
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Telling a story orally often involves using visual-spatial imagery to create/remember the events in a story (Rubin, 1995). Oral story-tellers often use a variety of verbal and non-verbal means to convey their stories effectively, such as prosody and co-speech gestures (Scheub, 1977). Co-speech gestures may serve a variety of functions in adults' story-telling, including helping speakers access language for speaking (Krauss, Chen, & Gottesman, 2001), particularly with concepts that are difficult (Kita, 2000). One study showed a strong link between the rate of co-speech gestures and the use of imagery (as measured by how long a story they chose to tell) in adults' oral narratives (Smithson, 2010).

Children's linguistic means for telling stories improves dramatically in terms of length, coherence, and complexity between the ages of 4 and 10 years (e.g., Berman & Slobin, 1994). Children's use of imagery also changes over that age span, with memory capacity of imagery increasing and becoming more dynamic (Vecchi, Phillips, & Cornoldi, 2001). The primary purpose of the present study was to test several possible predictors of children's co-speech gesture use in an oral narrative context. Children might become increasingly reliant on gestures as a strategy or as the complexity of their narratives increases. If so, either age and/or narrative complexity would be related to their gesture rate. Alternatively, they might use gestures more frequently as they rely more on imagery in remembering and creating the events to recount. If so, like adults, their story length would be related to their gesture use. A secondary purpose of this study was to test for possible cultural or linguistic differences in gesture rate. Anecdotally, speakers of Romance languages might gesture more than English speakers.

In this study we tested the strength of three predictors of children's gesture use in a narrative context: age, narrative complexity (discourse connectors), and use of imagery (story length). French-, Spanish-, and English-speaking children between 4 and 10 years of age participated in this study. The French-speaking children lived in Quebec, the Spanish-speaking children in Chile, and the English-speaking children in Alberta. The inclusion of these three groups allows us to test for the generalizability of our results and for cross-linguistic differences in the rates of gesture use. All the children watched a Pink Panther cartoon and told the story. The results showed that the length of the story (in word tokens) was a significant predictor of children's gesture rate while language group, age, and discourse connectors were not. There were no differences between language groups in their rate of gestures.

These results suggest that within this age range, children's gesture frequency is primarily linked to activation of imagery, rather than narrative complexity or age. That is, children's story-telling, like adults' story-telling, involves activating mental images to remember/create the events in the story. We argue that as children's story-telling abilities develop, they learn both verbal and non-verbal means to convey an interesting story (Colletta, 2009).

References

Berman, R. A. & Slobin, D. I. (1994). *Relating events in narrative: A crosslinguistic developmental study*. Hillsdale, NJ: Lawrence Erlbaum.

Colletta, J.-M. (2009). Comparative analysis of children's narratives at different ages: A multimodal approach. *Gesture*, 9, 61-96.

Kita, S. (2000). How representational gestures help speaking. In D. McNeill (Ed.), *Language and gesture* (pp. 162-185). Cambridge: Cambridge University Press.

Krauss, R. M., Chen, Y., & Gottesman, R. F. (2001). Lexical gestures and lexical access: A process model. In D. McNeill (Ed.), *Language and gesture* (pp. 261-283). Cambridge: Cambridge University Press.

Rubin, D. C. (1995). *Memory in oral traditions: The cognitive psychology of epic, ballads, and counting-out rhymes*. New York: OUP.

Scheub, H. (1977). Body and image in oral narrative performance. *New Literary History*, 8, 345-367.

Smithson, L. (2010). Telling Tales: Do working memory, gesture production, and bilingualism predict individual differences in narrative length? Unpublished paper. University of Alberta.

Vecchi, T., Phillips, L. H., & Cornoldi, C. (2001). Individual differences in visuo-spatial working memory. In M. Denis, C. Cornoldi, M. de Vega, & J. Engelkamp (Eds.), *Imagery, language and visuo-spatial thinking* (pp. 29-58). East Sussex, UK: Psychology Press.