

## **UC Merced**

# **Proceedings of the Annual Meeting of the Cognitive Science Society**

### **Title**

Children's multimodal coordination during collaborative problem solving

### **Permalink**

<https://escholarship.org/uc/item/2r98p9kt>

### **Journal**

Proceedings of the Annual Meeting of the Cognitive Science Society, 46(0)

### **Authors**

De Jonge-Hoekstra, Lisette

Pouw, Wim

van der Steen, Steffie

et al.

### **Publication Date**

2024

Peer reviewed

# Children's multimodal coordination during collaborative problem solving

**Lisette De Jonge-Hoekstra**

Psychology, Faculty of Behavioral and Social Sciences, University of Groningen, Groningen, Netherlands

**Wim Pouw**

Radboud University, Nijmegen, Netherlands

**Steffie van der Steen**

Faculty of Behavioral and Social Sciences, University of Groningen, Groningen, Netherlands

**Ralf F.A. Cox**

University of Groningen, Groningen, Netherlands

**James Dixon**

University of Connecticut, Storrs, Connecticut, United States

## Abstract

When children solve cognitive problems together, they coordinate their speech, hand movements and head movements. Previous studies with adults have shown that such multimodal coordination is related to better collaboration. We do not know whether this is true for children, however. In this study, dyads of children (6-10 years) discussed and solved balance scale problems together. To investigate children's multimodal coordination, we measured their speech, hand movements and head movements throughout their bouts of discussion, and applied multidimensional Recurrence Quantification Analysis (MdRQA) on these timeseries. We coded the type of collaboration the children engaged in during these bouts of discussion. We measured performance regarding predicting to which side the balance scale would tilt. We will analyse how children's multimodal coordination is related to the type of collaboration and to their performance on the balance scale problems. Our results will show how successful collaboration between children emerges from their multimodal coordination.