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Word-Learning Trajectories Influence Long-Term Recall in Children with Developmental Language Disorder and Typical Development

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Children with developmental language disorder (DLD) have difficulties learning words. Testing word recall during learning using repeated spaced retrieval (RSR) promotes long-term recall for children with DLD compared to only studying words. In this investigation, we characterize the learning process during RSR, relate children's trial-by-trial learning trajectories to long-term recall, and identify factors that promote success with RSR. We analyzed the learning and testing data from children with DLD and typical development from three recent studies using RSR. We fit growth curves to the trial-by-trial learning data for immediate and RSR trials and used children's individual word-learning trajectories to predict long-term recall. Both groups demonstrated linear growth during learning, despite breaks across days. Success on early immediate retrieval trials promoted success on subsequent RSR trials. Children's trial-by-trial learning trajectories were associated with long-term recall: cumulative success and growth over time on the RSR trials positively predicted long-term recall. Repeated spaced retrieval supplemented with immediate retrieval trials during learning promotes long-term recall. This research was supported by NIH grants R01DC014708 to Laurence B. Leonard and F31DC018435 to Justin B. Kueser.