The effect of distributed and massed practice on statistical learning of words and syntax

Neil Walker¹, Christine Schoetensack², Padraic Monaghan², Patrick Rebuschat²

¹Lancaster University and University of Central Lancashire, United Kingdom
²Lancaster University, United Kingdom

Study schedules that are distributed, with gaps between learning trials, have been shown to have a long-term memory advantage over massed schedules without gaps. This advantage, commonly known as the spacing effect, has been found in infants and adults and in several language domains, including vocabulary list learning and (L1 and L2) grammar learning. This paper reports the results of an experiment that investigated the role of distributed practice schedules compared to massed practice schedules in cross-situational learning of words and syntax.

Adult native speakers of English were exposed to an artificial language consisting of 18 pseudowords, including nouns, verbs, adjectives and case markers. The syntax was based on Japanese, with verbs always occurring in sentence-final position but flexible placement of subject and object noun phrases (SOV and OSV). There were 192 training and 96 testing sentences over 16 blocks. In the cross-situational learning task, subjects saw two dynamic scenes on the screen and heard a sentence in the artificial language. Their task was to decide which scene the sentence described. No feedback was given, thus requiring subjects to learn the correspondence between sentences and scenes by tracking associations between particular words and objects, properties of objects, actions, and agent and patient roles in the scenes. Subjects in the massed condition completed the 16 blocks consecutively; the distributed group had three twenty-minute gaps after blocks 4, 8 and 12. There was a delayed vocabulary and syntax test 24 hours later.

Data collection is ongoing. We predict that a learning advantage will be present for the distributed practice group in both vocabulary and grammar learning. Implications for research into L2 acquisition and teaching will be discussed.

Keywords: cross-situational learning, spacing effect, statistical learning, distributed and massed practice.