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Effect of interleaving exemplars presented as auditory text on long-term retention in inductive learning

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Abstract

The present study investigated the exemplar interleaving effect on long-term retention in the context of inductive learning. In particular, an experiment using aurally presented texts was conducted to examine whether or not the benefits of interleaving of exemplars from several categories vary with retention interval in inductive learning. Participants studied a series of aurally presented texts from several categories which were presented massed and interleaved, and later their induction was tested either shortly after the study phase (short-term retention) or after a week's delay (long-term retention). Consistent with findings from previous studies, the interleaving effect was found in the short-term retention condition, and crucially, the present study extended the generalisability of the interleaving effect in the long-term retention condition to aurally presented texts. Interestingly, participants judged massing to be more effective than spacing (interleaving) though their actual performance showed the opposite. The present study provides further evidence that interleaved exemplars have considerable potential in improving inductive learning in the long term.

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Keywords: interleaving effect; inductive learning; category learning; category induction; spacing effect

1. Introduction

It is an established experimental finding that memory retention for spaced repeated items is better than massed repeated items [1, 2, 3]. The finding of improved memory for spaced repetitions, called the spacing effect, has been documented in a broad range of memory tasks with many different types of study materials [1, 2, 4]. The spacing effect is not only found when the test is given shortly after the study phase, which measures short-term memory retention [5, 6], but also when the test is given after a delay interval which measures long-term memory retention ranging from days [7, 8] to months [9].

In the context of inductive learning, the spacing effect was found over the brief retention interval (which measures short-term retention) in a number of studies [11-17]. Inductive learning is the process of learning by examples. Induction is concerned with inferring knowledge from an incomplete set of observations, and this contrasts with deduction, where the learner formulates regularities observed in a complete set of data [10]. In past studies that found the spacing effect, the focus was on inductive learning that occurs during category learning which requires students to work from specific exemplars and derive general concepts or categories from those exemplars.

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