The effects of retrieval and trial and error exercises on learning phrasal verbs

What this research was about and why it is important
A lot of course books and internet resources for learning English as a second or foreign language feature exercises intended to help students learn phrasal verbs. Some have students first study one or more phrasal verbs and then recall their components from memory, for example in a gap-fill exercise. Other exercises work in the reverse order: they first invite students to provide the missing component words and then provide feedback. The first use of exercises relies on learning through successful retrieval, while the second relies on learning through trial and error. The study compared the effectiveness of these two implementations of exercises on phrasal verbs. The study further examined whether it is better to tackle one phrasal verb at a time in (which, in the case of the trial-and-error implementation entails immediate feedback) or whether it is better to tackle several phrasal verbs in one go (which makes doing the exercise more effortful). Students’ memory of the phrasal verbs was measured shortly after they completed the exercises and after a one-week delay. The findings showed, first, that a retrieval exercise that allows students to learn one phrasal verb at a time was most beneficial, and, second, guessing incorrectly during learning makes those errors difficult to forget, despite the provision of feedback.

What the researchers did
- The participants were 145 undergraduate Japanese learners of English from five parallel classes. Their average TOEIC Bridge Test score was 157 out of 180. A norming study indicated that the participants were unlikely to know the target phrasal verbs prior to the study.
- The participants were randomly assigned to one of four treatment groups: one-at-a-time retrieval, 14-in-a-row retrieval, one-at-at-time trial-and-error, 14-in-a-row trial-and-error.
- Both the retrieval groups first studied phrasal verbs and then were prompted to recall the particles (up, in, etc.). The critical difference between the two groups was that for the one-at-a-time retrieval group, the phrasal verbs were learned individually (i.e., one after the other) and for the 14-in-a-row retrieval group, 14 phrasal verbs were studied all together.
- Both the trial-and-error groups guessed the missing particles of phrasal verbs and then studied the phrasal verbs intact. The key difference between these two groups was that the one-at-a-time trial-and-error group studied each phrasal verb separately while the 14-in-a-row trial-and-error group learned 14 phrasal verbs all together.
- Learning was assessed shortly after students completed the exercises with a test that required students to recall the phrasal verbs from memory. The same test was administered one week later.
- To determine whether the errors made in the exercise hindered learning, the errors on the post-tests were cross referenced with the errors on the exercises.

What the researchers found
- The results of the immediate post-test indicated that phrasal verbs were learned better in the retrieval exercises than the trial-and-error exercises.
- The results of the delayed post-test showed that the one-at-a-time retrieval exercise helped students retain more of the phrasal verbs in memory than any of the other exercises.
- Cross referencing post-test errors with exercise errors revealed that a large portion of errors made in the trial-and-error exercises were duplicated on the post-tests, suggesting that errors, once made, are difficult to forget, even when corrective feedback is given.

Things to consider
- With respect to the retrieval exercise, it seems to matter whether students study one phrasal verb at a time or several in a row. However, further research is needed to uncover whether this outcome would still occur if students were presented with a smaller set of phrasal verbs (e.g., seven) to study at once.
- The trial-and-error exercise is believed to deepen learning by raising students’ interest in knowing the correct answer. The findings of this study do not support this assumption; just the opposite, they show that making errors impedes learning by strengthening the representation of the errors in memory more than that of the correct answer. However, learning outcomes from trial-and-error activities may depend on how feedback is given. For example, exercises that provide contextual supportive study material as part of the feedback could help students understand better why their guesses are wrong, which might facilitate learning the correct answers better than observed here.

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