A little production practice provides a big boost in language learning.

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Language production practice provides a stronger grammar and vocabulary learning experience than language comprehension practice (Hopman & MacDonald, 2018). Unlike in typical classroom environments, learners in that study received either only comprehension exercises or only production exercises. Here we investigate the learning benefits of language production in a more realistic setting in which learners get mostly comprehension practice and only a little production practice.

As in Hopman & MacDonald's study, English speaking participants learned a 20-word artificial language that described a cartoon world in 7-word sentences. Four word types ended in suffixes agreeing in number and gender. Participants learned this language through interleaved passive exposure and active learning blocks. In active comprehension trials, learners made a match-mismatch judgment on an auditory phrase and an accompanying picture. In active production trials, learners were asked to describe pictures aloud in the novel language. We trained 104 participants in a new Mixed-Experience condition and compared their rates of learning and comprehension to that of participants from Comprehension-Only and Production-Only training conditions (208 participants total). The Mixed-Experience condition was identical to the original Comprehension-Only condition, except that 1 trial in each active comprehension block was replaced with a production trial, affecting approximately 17% of learning trials.

After learning, participants completed speech-picture matching tests to assess understanding of grammatical agreement markers and a grammatical judgment test to assess understanding of agreement rules. Although the Mixed-Experience condition differed from the Comprehension-Only condition in only about 1/6th of the learning trials, the Mixed-Experience participants significantly outperformed Comprehension-Only participants on tests of comprehension. These results show that even a small amount of production practice provides strong learning and comprehension benefits compared to a comprehension-only curriculum. We will discuss potential mechanisms for this effect and implications for language learning.
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Question: How do production- and comprehension practice differentially affect language learning?
Due to the different memory processes involved in producing and comprehending language, production-only practice provides a stronger grammar learning experience than comprehension-only practice (Hopman & MacDonald, 2018). In order to test whether production practice improves learning incrementally or can provide a strong learning boost, we trained participants in a new production-only condition. Learners get mostly comprehension practice and a little production practice, a mixture typical of classroom learning settings. Hypothesis: Adding even a little production practice will provide strong learning and comprehension benefits to a Comprehension-Only curriculum.

Production: stronger learning experience than comprehension
Comprehenders, especially early on in second language learning, may settle for a good-enough interpretation without a detailed analysis of syntactic dependencies (Ferreira & Patson, 2007). While elements of the to be produced utterance are held in working memory during utterance planning, binding can happen between them, strengthening learning of dependencies between words.

Training people on an artificial language
Training in three learning conditions

Training in three learning conditions

Comprehension Tests
- Vocabulary Screening (18)
- Forced Choice (FC)
  - Vocabulary in phrases (18)
  - Suffix Agreement (24)
- Error Monitoring (EM)
  - Suffix Agreement (48)
  - Word Order (32)

Comprehension

Grammar Dependencies
- Kind-looking
- Scary-looking

Comprehension

Testing Grammatical Dependency Comprehension

FC Suffix Understanding
- "The Fumus Fumus Slam On"
- "The Fumus Fumus Slam On"

EM Suffix Agreement
- "Vus Safus Ket"
- "Vus Pexus"

Theoretical implications & future directions to elucidate mechanisms
- The transfer we see from production training to better performance on comprehension tests is in line with shared production-comprehension representations.
- Do participants improve only on words they produced, or is there a general benefit of producing to all words?
- Which of the inherent production-comprehension differences is responsible for the learning boost we see?