Supporting Information

Szpunar et al. 10.1073/pnas.1221764110

SI Materials and Methods

Scoring of Test Responses in Experiments 1 and 2. Responses to test questions were recorded as either correct (1 point), partially correct (1/2 point), or incorrect (0 points). A single rater scored all test responses. As a reliability check, 25% of test responses for experiments 1 and 2 were scored by a second rater. The interrater agreement and reliability were both 0.95.

Factors Operating at Retrieval in Experiments 1 and 2. Previous research has demonstrated that interpolating extended periods of study with tests helps learners to mentally segregate the study sequence into discrete units (1), which allows them to keep track of when specific pieces of information were learned (i.e., source memory) (2, 3).

Across both experiments, we observed that interpolated testing of online lectures helped students to keep track of the source of lecture content. In experiment 1, students in the tested group (M = 2%) were less likely to incorrectly answer questions for the fourth lecture segment using information from lecture segments 1–3 than students in the nontested group (M = 8%), $t(30) = 2.09$, $P = 0.046$, $d = 0.76$. On the final test, students in the tested group (M = 1%) were also less likely to incorrectly answer questions using information from the wrong segment of the lecture than students in the nontested group (M = 11%), $t(30) = 3.75$, $P = 0.001$, $d = 1.51$.

In experiment 2, we observed main effects of source confusion during the fourth lecture segment test, $F(2,45) = 4.21$, $P = 0.021$, $\eta^2 = 0.16$, and the final cumulative test, $F(2,45) = 7.85$, $P = 0.001$, $\eta^2 = 0.26$. Students in the tested group were less likely to make source confusions during the fourth lecture segment test (M = 1%) and the final cumulative test (M = 1%) than students in the restudy [M = 16%, $t(30) = 2.57$, $P = 0.015$, $d = 1.11$ and M = 9%, $t(30) = 3.83$, $P = 0.001$, $d = 1.60$, respectively] and nontested groups [M = 14%, $t(30) = 3.45$, $P = 0.002$, $d = 1.38$ and M = 8%, $t(30) = 3.94$, $P < 0.001$, $d = 1.60$, respectively]. Students in the restudy and nontested groups did not differ from one another in any respect (ts < 1).

Hence, interpolating online lectures with brief memory tests further helped students to avoid making source confusions during the fourth lecture segment test and the final cumulative test.

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3. Brewer GA, Marsh RL, Meeks JT, Clark-Foos A, Hicks JL (2010) The effects of free recall testing on subsequent source memory. *Memory* 18(4):385–393.