

CUE TEST 2 SPECIFICATIONS

(updated 07/18/2005)

What type of information is learned during cued-recall intervening tests, as opposed to re-study opportunities, that contributes to better long-term retention?

Follow-up to CueTest1 in which free-recall and cued-recall retention for cues and targets was explored using inter-mixed lists of tested vs. studied items, CueTest2 explores free-recall and cued-recall retention for cues and targets using blocked (“pure”) lists of tested vs. studied items.

Task: Learn to associate paired-associate items → cued-recall test vs. re-study → final test over all items.

Stimuli: 40 paired associates. Found in *CueTestList.xls*

Word 1 and Word 2 randomly assigned to be cue or target, word pairs randomly assigned to Test or Study.

Item #	Word 1	Word 2	Trial
1	angle	corner	Test
2	author	poetry	Test
3	beach	blanket	Test
4	block	street	Test
5	chain	fence	Test
6	child	mother	Test
7	cloth	table	Test
8	coffee	morning	Test
9	college	student	Test
10	curve	shape	Test
11	engine	machine	Test
12	factory	product	Test
13	frame	window	Test
14	group	meeting	Test
15	guard	prison	Test
16	lunch	supper	Test
17	master	owner	Test
18	nation	state	Test
19	native	foreign	Test
20	nature	trail	Test
21	novel	story	Study
22	object	symbol	Study
23	office	doctor	Study
24	paint	picture	Study

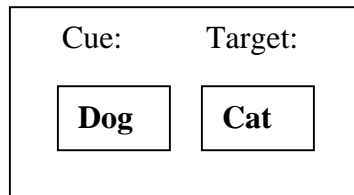
25	people	world	Study
26	quarter	dollar	Study
27	range	rifle	Study
28	report	weather	Study
29	sheet	cover	Study
30	slave	worker	Study
31	smile	teeth	Study
32	sound	speaker	Study
33	station	radio	Study
34	stick	branch	Study
35	store	general	Study
36	taste	touch	Study
37	throat	voice	Study
38	train	plane	Study
39	vehicle	truck	Study
40	pencil	point	Study

Design:

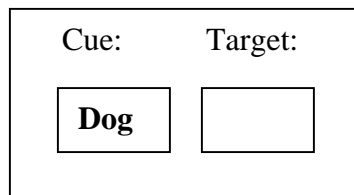
- 2 within-subjects trial conditions:
 - (1) Test: Present cue → subject attempts retrieval of target + feedback
 - (2) Study: Present cue and target together

- 4 between-subjects final test conditions:
 - (1) Cued-recall of target when given cue
 - (2) Cued-recall of cue when given target
 - (3) Free-recall of target
 - (4) Free-recall of cue

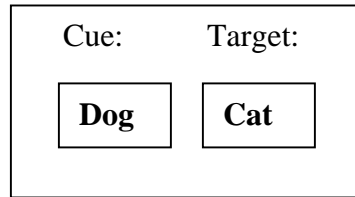
Presentation phase: Present all 40 pairs, for 6 sec each, followed by blank screen with “continue” button (6 sec x 40 pairs = 4 min).



Test phase: Present 20 pairs with cue only for 5 sec, with instructions to attempt covert retrieval of target, followed by cue + target for 5 more sec (10 sec per pair total x 20 pairs = 3.33 min).



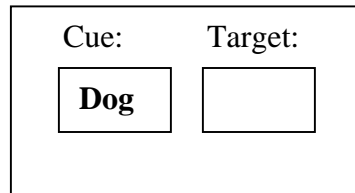
Study phase: Present the other 20 pairs with cue + target for 10 sec (10 sec per pair x 20 pairs = 3.33 min).



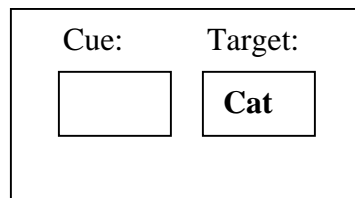
Present test and study phases in **blocked** fashion. For half of subjects, first 20 pairs are tested items and second 20 pairs are studied items, and for the other half of subjects, first 20 pairs are studied items and second 20 pairs are tested items.

Final test: 24 hours after test/study phase. One of 4 types of final tests:

- *Cued-recall of target*: Present cues one at a time in new random order (cue: _____), and require retrieval of target for all 40 pairs (responses entered by typing target). No time limit for retrieval, and no feedback. (≈ 10 sec for retrieval of each target x 40 targets = 6.67 min).



- *Cued-recall of cue*: Present targets one at a time in new random order (_____: target), and require retrieval of cue for all 40 pairs (responses entered by typing cue). No time limit for retrieval, and no feedback. (≈ 10 sec for retrieval of each cue x 40 cues = 6.67 min).



- *Free-recall of target*: Participants type in all target items they can remember. No time limit for retrieval, and no feedback. (≈ 10 sec for retrieval of each target x 40 targets = 6.67 min).
- *Free-recall of cues*: Participants type in all cue items they can remember. No time limit for retrieval, and no feedback. (≈ 10 sec for retrieval of each cue x 40 cues = 6.67 min).

Total time to complete: 3 min for consent and instructions + Presentation phase (4 min) + Test phase (3.33 min) + Study phase (3.33 min) + Final test (6.67 min) = 20.33 min.

Hypothesis:

A cued-recall intervening test enhances retention beyond additional study because of two factors: (1) greater reliance on cue-target associations (which is more necessary in test as opposed to study), and (2) strengthening of item-specific information for those items that have been retrieved (which takes place only during retrieval and not re-exposure).

If cue-target associations are strengthened by tests, then on a final test of cued-recall, items subjected to intervening test trials should be retained better than items subjected to intervening re-study trials. This should hold whether the target is recalled from the cue, or the cue is recalled from the target. $TT > ST$ for both cue and target when final test is cued-recall.

If item-specific information of only the retrieved target is strengthened by tests, then previously-tested target items should be retained better than re-studied target items on a final test of free-recall (because these target items were previously retrieved), but previous cues on the intervening test trials should NOT be retained better than re-studied cues on a final test of free-recall (because these cue items were not previously retrieved). $TT > ST$ for just target (not cue) when final test is free-recall.

Subjects: 80 web-based lottery subjects (20 per final test condition).

Instructions:

Instructions 1:

In this experiment we are going to try and teach you pairs of words. You will learn several word pairs, which will be presented side-by-side as in the example below:

Cue: Target:

Dog	Cat
------------	------------

We use the terms ‘cue’ and ‘target’ to identify which word is which. The first word, on the left-hand side, is the cue. The second word, on the right-hand side, is the target. So in this example, Dog is the cue and Cat is the target.

The word pairs will be presented one at a time, for 6 seconds each. When you see each word pair, try to associate the cue and target in order to remember the word pair.

Click 'continue' to begin.

Instructions for intervening test and study trials:

Now things are going to get more interesting! We are going to present the word pairs again, only this time they will be presented differently.

For some of the word pairs, you will see both the cue and target again (for example, **dog: cat**) for 10 seconds. Again, we would like you to try and associate the cue and target in order to remember the word pair.

For other word pairs, you will see only the cue (for example, **dog: ____**) for 5 seconds, and we would like you to try and remember the correct target that goes with that cue (the correct target is **cat**, in this example). After the cue is presented alone for 5 seconds, the correct target will be presented for an additional 5 seconds, so you can see whether or not you remembered the correct target. Please do your best to try and remember each target.

Click 'continue' to begin.

Instructions for final test – cued recall of targets:

Now we are going to quiz you over what you learned yesterday. Each of the cues will be presented, one at a time, and we would like you to type in the correct target that goes with each cue.

This is the same type of test you completed yesterday. Yesterday, we quizzed you over some of the word pairs by giving you the cue and asking you to remember the target. Today, we are quizzing you over all of the word pairs by giving you the cue (the word on the left-hand side) and asking you to remember the target (the word on the right-hand side).

For example, you will see a cue by itself like the one below:

Cue:

Dog

Target:

For this cue, you would type in the correct target word, which is **cat**.

You have unlimited time to remember each target. Although some of them might be difficult to remember, please try your best, and enter a response even if you are uncertain.

Click 'continue' to begin.

Instructions for final test – cued recall of cues:

Now we are going to quiz you over what you learned yesterday. Each of the targets will be presented, one at a time, and we would like you to type in the correct cue that goes with each target.

This is a different type of test from the one you completed yesterday. Yesterday, we quizzed you over some of the word pairs by giving you the cue and asking you to remember the target. Today, we are quizzing you over all of the word pairs by giving you the target (the word on the right-hand side) and asking you to remember the cue (the word on the left-hand side).

For example, you will see a target by itself like the one below:

Cue:	Target:
<input type="text"/>	<input type="text" value="Cat"/>

For this target, you would type in the correct cue word, which is **dog**.

You have unlimited time to remember each cue. Although some of them might be difficult to remember, please try your best, and enter a response even if you are uncertain.

Click 'continue' to begin.

Instructions for final test – free recall of targets:

Now we are going to quiz you over what you learned yesterday. We would like you to type in all of the correct targets you can remember.

This is a different type of test from the one you completed yesterday. Yesterday, we quizzed you over some of the word pairs by giving you the cue and asking you to remember the target. Today, we are quizzing you over just the target words (the word on the right-hand side).

For example, yesterday if you learned the word pair **dog: cat**, today you would type in only the correct target word, which is **cat**.

You have unlimited time to remember each target. Although some of them might be difficult to remember, please try your best, and enter all the responses you can.

Click 'continue' to begin.

Instructions for final test – free recall of cues:

Now we are going to quiz you over what you learned yesterday. We would like you to type in all of the correct cues you can remember.

This is a different type of test from the one you completed yesterday. Yesterday, we quizzed you over some of the word pairs by giving you the cue and asking you to remember the target. Today, we are quizzing you over just the cue words (the word on the left-hand side).

For example, yesterday if you learned the word pair **dog: cat**, today you would type in only the correct cue word, which is **dog**.

You have unlimited time to remember each cue. Although some of them might be difficult to remember, please try your best, and enter all the response you can.

Click 'continue' to begin.