

RESEARCH ACTIVITY: Word-stem completion task

For this exercise it is important that you follow the instructions carefully and that you are NOT tempted to scroll forward at any point.

Phase 1

Instructions: Please read the following text through once only:

The house stands on a hill overlooking the waters of the river Agua. Its occupants are a city broker and his friend, both soon to retire. They both share an interest in this region of Spain, having spent many a joyful holiday here. Just six more months of work back home and they will be out here for a good amount of time each year, rather than the odd weekly visit. They like the peace and the slow pace of life here compared to the hustle and bustle of central London, where they have lived for the past twenty years. The cost of living is also much better here and their pension will go much further.

Phase 2

Below are 12 word stems, each beginning with three letters, with the last three letters missing. Your task is to complete the words to make real words, but you must NOT use any word that was present in the previous text. DO NOT cheat or reread that text! Write out your answers on a spare piece of paper.

STA_ _ _

WAT_ _ _

FRI_ _ _

RET_ _ _

REG_ _ _

JOY_ _ _

MON_ _ _

AMO_ _ _

RAT_ _ _

BUS_ _ _

LIV_ _ _

BET_ _ _

Once completed, go to the next phase

Phase 3

Your next task is to study the following 12 words for 2 minutes.

Detour

Thrown

Entail

Trance

Locate

Potent

Series

Tender

Ration

Leaves

String

Beaker

After 2 minutes have passed, go to the next phase.

Phase 4

Below are 12 word stems, each beginning with three letters, with the last three letters missing. Your task is to complete the words to make real words, but you must NOT use any word that was present in the previous list. DO NOT cheat or reread that list! Write out your answers on a spare piece of paper.

DET_ _ _

THR_ _ _

ENT_ _ _

TRA_ _ _

LOC_ _ _

POT_ _ _

SER_ _ _

TEN_ _ _

RAT_ _ _

LEA_ _ _

STR_ _ _

BEA_ _ _

You may now check your answers. In Phase 2, score 1 point for each word you completed that is contained in the text passage. Also, for Phase 4, score 1 point for each word you completed that exists in the list.

Rationale: What is this activity about?

Jacoby et al. (1993) devised a method to tease apart the two influences of conscious and non-conscious processes in memory. The assumption is that both processes are involved separately during learning, and that if conscious processes are inhibited then the result on some recall task must be the influence of non-conscious processing.

The stem-completion task you carried out above is usually conducted under four conditions. The stimuli can be presented in conditions in which attention is either highly focused (optimal condition) or only partially focused (suboptimal condition) on the words presented. The task carried out is stem completion – either trying to complete the stems using the words presented (inclusion task), or trying to complete them by NOT using the words presented (exclusion task). The four conditions are shown in the table below.

	Word presentation	
	Optimal	Suboptimal
Inclusion	Complete word stems to make previously seen words Correct inclusion implies conscious retention of the words	Complete word stems to make words previously shown suboptimally, such as while doing a distractor task or words presented very briefly Correct inclusion implies non-conscious retention of the words
Exclusion	Complete word stems but <i>don't</i> use any word shown previously	Complete word stems but <i>don't</i> use any word shown previously at suboptimal

		levels, such as while doing a distractor task or words presented very briefly
	Correct exclusion implies conscious retention of the words	Incorrect exclusion implies non-conscious retention of the words

Note that the key condition is suboptimal exclusion. If participants complete word stems using the suboptimally presented words when instructed NOT to use those words, then this implies that a non-conscious or implicit process is at work during the task.

Phases 1 and 2 above were designed to be an exclusion task with a suboptimal prime. Since the words were embedded within a story, it is likely that you did not pay particular attention to individual words, but rather to the overall meaning of the text. Therefore the presentation of the target words could be considered suboptimal. In contrast, Phases 3 and 4 represent an exclusion task with an optimal prime. The words were presented individually and you were given a sufficient amount of time to attend to them.

Your data

Score your work for Phases 1 and 2, and then Phases 3 and 4. Give yourself 1 point each time you completed a word stem *by using a word previously shown* (that is, when you failed to exclude a given word). Ignoring any word stem that you could not complete, calculate the percentage of exclusion failures for each task. Thus, if in Phase 1 and 2 you failed to exclude two words in the task, correctly excluded six words in completing the word stems, but could not complete the word stem in two cases, then your percentage score would be 2/6, or 33%.

Predictions

Explicit and implicit memory systems are both thought to be in operation during learning. The exclusion–inclusion task devised by Jacoby et al. (1993) is one way in which the relative contribution of either process may be isolated. In line with previous research, the predictions of the data obtained in this exercise are that (1) incorrect exclusions with the optimal prime (Phases 3 and 4) should be lower than those with the suboptimal prime (Phases 1 and 2); and (2) there should be some failures to exclude with the suboptimal prime – this is because of your implicit, non-conscious processing of the target words.

Questions

1. If you failed to exclude in the suboptimal condition, can you think of a reason why that might not involve the concept of implicit memory?

2. One criticism of this approach is that participants use a generate-and-test rule. That is, they generate a possible stem completion and then test their memory to see if it was in the list. This might mean that explicit processes are not independent of implicit processes. Did you use the generate-and-test method?
3. Can you think of other ways of presenting words suboptimally?
4. What do you think are the key factors (about the way the stimuli could be presented suboptimally) that might be important when someone fails to exclude an item?
5. What might cause a failure to exclude in the optimal condition? Could a failure to exclude in the suboptimal condition be explained in the same way?

Reference

Jacoby, L.L., Toth, J.P. & Yonelinas, A.P. (1993). Separating conscious and unconscious influences of memory: Measuring recollection. *Journal of Experimental Psychology: General*, 122: 139–54 [doi: 10.1037/0096-3445.122.2.139].