Abstract

This experiment explores the interaction of sound and spelling information in the early stages of spoken word recognition and its impact on different memory tests. If both sounds *and* spellings determine the pool of candidates as the spoken stimulus unfolds, study words with both shared sound and spelling (*parasite*) should activate their corresponding target (*paragraph*) to a great extent during study and seem very familiar at test, leading to false recognition errors to their target (i.e., report having heard *paragraph* on the study list, when, in fact, it was *parasite*). In previous research we have gained support for this hypothesis with a recognition memory test—an explicit test of memory. If this automatic activation process is indeed taking place without the listener’s conscious awareness, we predict that a test of implicit memory that taps into weaker memories beyond the listener’s awareness will be even more sensitive to these activation effects. Therefore, we will replicate the recognition memory test and add a word fragment completion test. False recognition rates to targets will be compared across tasks.

**Method**

**Participants**

The present study will require 120 participants. Participants will consist of student volunteers from MSUM lower-level psychology courses. Participants will be recruited by posting a sign-up sheet in the Psychology Department. The informal title of “Recognizing Words” will be used for recruiting, consent, and debriefing. Because of the nature of the processes under investigation, students must report normal hearing and be native speakers of the English language. Students will receive extra credit as allowed by their psychology instructor. All participants will be treated in accordance with the ethical guidelines of the American Psychological Association (APA).

**Materials**

The study list will consist of 64 items. Serial position filler words will occupy the first two and last two serial positions on the list. The remaining 60 positions will be allotted to two blocks of the 30 study items of interest and distributed across the following four shared information categories: (1) beginning sounds and spellings, (2) ending sounds and spellings (3) unrelated, and (4) targets. Three different versions of the study list will be created, so that the study relationship for each target is counterbalanced across lists. The words will be presented at a 3-second rate. A sample of the study words is attached in Appendix A.

The test list will consist of 34 items—two serial position buffers at the beginning and end with the 30 critical test words in the middle in random order. For the explicit memory test, each test word will be displayed individually on the computer screen for three seconds. For the implicit memory test, each test word will be displayed as a word fragment (i.e., some letters will be missing from the test word and participants will be instructed to complete the fragment with the first word that comes to mind). A sample of the test words and their corresponding word fragments is attached in Appendix B.

**Procedure**

A trained undergraduate research assistant will test participants individually in a small, quiet room. Participants will be seated in front of a computer monitor with the research assistant seated off to the side. Participants will be instructed to simply listen carefully to long list of items and that instructions for the second part of the experiment will be given later.

After the study list, participants will engage in a 5-minute math distracter task. Then participants will be informed that a second, shorter list of words will be played. This test list will contain the critical targets of the study words and 4 buffer words, for a total of 34 items.

Participants in the explicit memory test condition will take a standard recognition test with an added Remember-Know task. This means that when each test word is presented, participants will indicate “old” (the word appeared on the first list) or “new” (the word did not appear on the first list). Then for each “old” response participants will be further prompted for a “remember” (I can consciously recollect its prior occurrence) or a “know” judgment (I am certain I recognize the item, but it fails to evoke any specific conscious recollection from the study list). The experimenter will type each response into the computer, thereby triggering the presentation of the next test word.

Participants in the implicit memory test condition will take a word-fragment completion test. Participants will be instructed to complete the fragments with the first solution that came to mind. They will be told that only a limited amount of time will be given, and therefore it is important to complete the fragments as soon as they think of a solution. The experimenter will then enter the response. Each fragment will be displayed for a maximum of 15 s. If participants are unable to complete the fragment, the trial will time out and the next fragment will be displayed.

Both tests will continue until all 34 test words have been displayed. Then participants will be given a debriefing statement and proof of their participation. The entire experiment will last about 20 minutes.