Modality effects in novel picture-word form associations

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Introduction

Does modality affect the efficiency of learning novel word forms and meanings? Previous literature reports both spoken¹ written learning advantages².

Contradictory findings result from differences in:
1. Exposure times to the stimuli in different modalities
2. Congruency of training and test modality³
3. Orthographic and phonological transparency
4. Congruency of format of word form and word meaning
5. Explicit learning strategies

Our study

How does modality of word form affect learning?
• Implicit learning task
• Learning novel word - novel object pairs
• Training: spoken training condition; equal written training condition providing equal exposure time and reduced written training condition, providing sufficient time to read (300 ms), but less than in the spoken training condition, as reading is faster than listening to speech
• Test: written and spoken modality

Methods

Participants. 90 participants (M = 22.99 years, SD = 2.47; 72 female).

Design. 3x2 between-subjects design:

<table>
<thead>
<tr>
<th>Training phase</th>
<th>Test phase</th>
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<tbody>
<tr>
<td>Spoken</td>
<td>Spoken SS</td>
</tr>
<tr>
<td>Equal written exposure</td>
<td>WeS WeW</td>
</tr>
<tr>
<td>Reduced written exposure</td>
<td>WriS WriW</td>
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</table>

Materials. 24 orthographically and phonologically transparent Dutch pseudowords created with Wuggy⁴ and 24 pictures from the NOUN Database⁵.

Procedure.

Results

• Spoken training < written training when exposure is equal (estimate = 0.55, SE = 0.24, z = 2.26, p = .02).
• Spoken training = written training when written exposure is reduced (estimate = 0.21, SE = 0.22, z = 0.95, p = .34).
• Equal written exposure = reduced written exposure (estimate = 0.34, SE = 0.22, z = 1.52, p = .13).

Discussion

• Controlled for several confounds, including reading being faster than listening.
• Proficient readers learn novel written and spoken words and meanings equally effectively.

References


*Only the effects of training condition are reported on this poster. For the effect of modality or interaction effects please consult the presenter or the handout.