Get the Hint

Word-study tool for Finnish that provides users with infrequent hints-feedback

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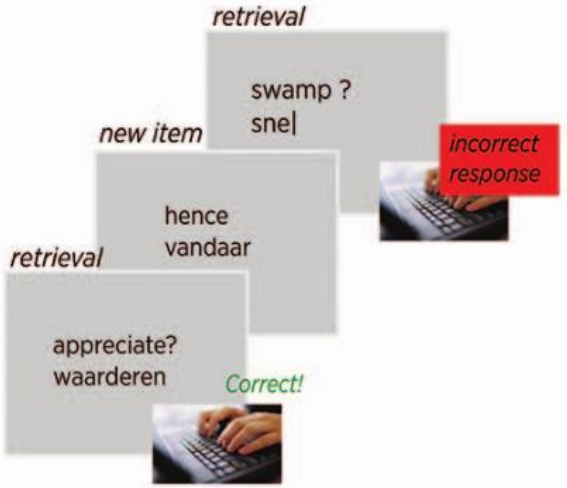
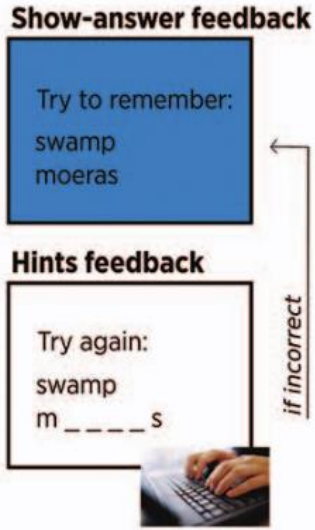
Reminder: Van den Broek et al. (2019)

Overview of practice (in Session 1)



Intermixed study (of new items) and repeated, spaced retrieval, with an adaptive spacing algorithm (Sense et al., 2016).

Conditions: Show-answer vs. Hint



The two practice conditions differed only in their feedback to errors.

Different Hints in Exp.1, 2, 3

Exp.1 Orthographic

Try again:
visible
z _ _ _ _ _ _ _ r

Exp.2 Mnemonic

Try again:
swamp?
Hint: 'swamp' sounds like 'zwem' (swim). I don't want to swim in a swamp.

Exp.3 Cross-language

Try again:
confiteri?
Hint: Think of the English word 'to confess'

The Idea

- Van den Broek et al. (2019) found no significant difference during test performance between show-answer feedback and hints-feedback
- A possible explanation is that **students relied to much on the hints / recall prompts**
- How can we force or encourage students to rely less on hints during testing?

The Idea

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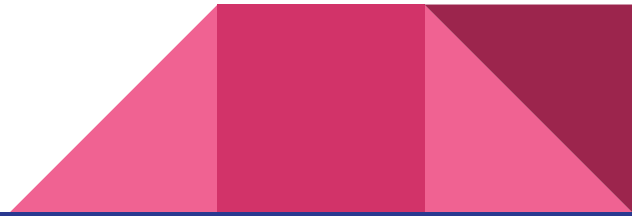
We disencourage students to use the hints during practice

Basic Algorithm

- Present the word-pairs in a spacing sequence based on the **Slim Stampen** algorithm
- Give the students the option to **buy a hint** if they think they do not know the answer
- Hints will be **orthographic**
- **Gamification** by keeping scores:
  - Correct answer is rewarded with points, also after buying a hint
  - Buying a hint will cost points
  - No score, and no penalty, for wrong answers (to encourage students to try if they can remember the word without using the hint)

Model implementation

- Participant buys hint ➔ count as an incorrect answer
  - Participant still does not know the answer ➔ count as another incorrect answer
  - Participant gives correct answer after hint ➔ count as correct answer with response time multiplied by 1.25



Game & Basic Algorithm

- Type ‘1’ to buy a hint.
- The game has **levels**
  - The higher the level, the higher the cost of a hint
  - Hints will never cost more than the reward for a correct answer
- Second letter given in the hint is **randomized**

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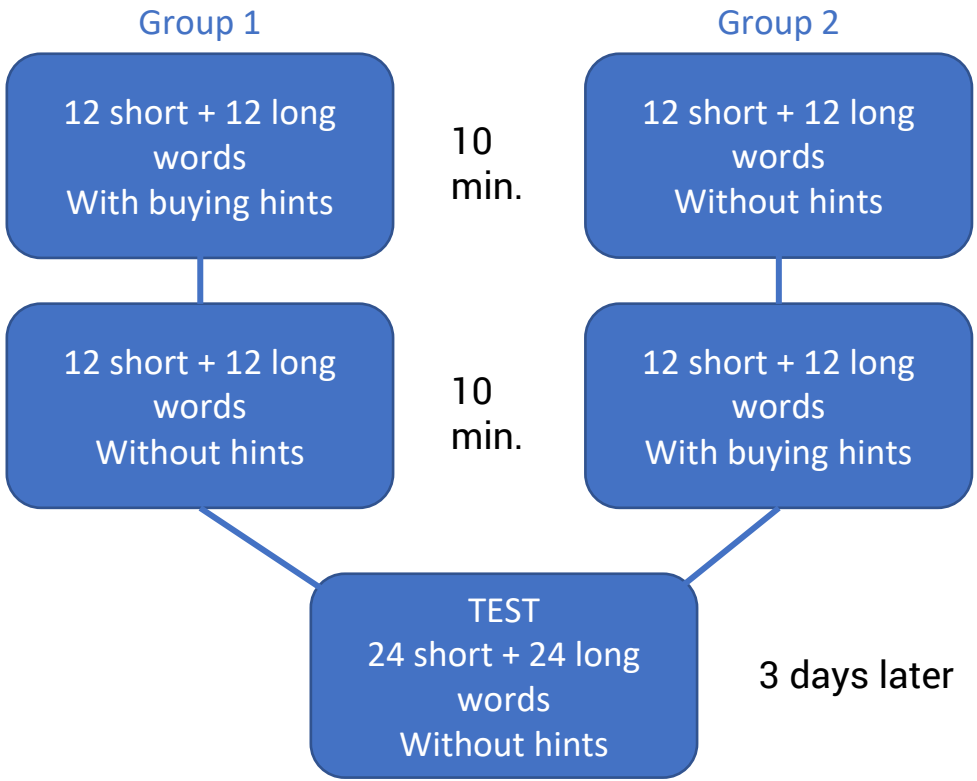
Example

Lumi (snow) gets one of the following hints at random:

s n _ _
s _ o _
s _ _ w

Demo

Experimental set-up



- Short words are short Finnish words, long words are longer Finnish words
- English translations are always short
- Words randomly divided between conditions for each participant
- 9 participants
- Counterbalanced (4 started with hint, 5 without)

Hypotheses

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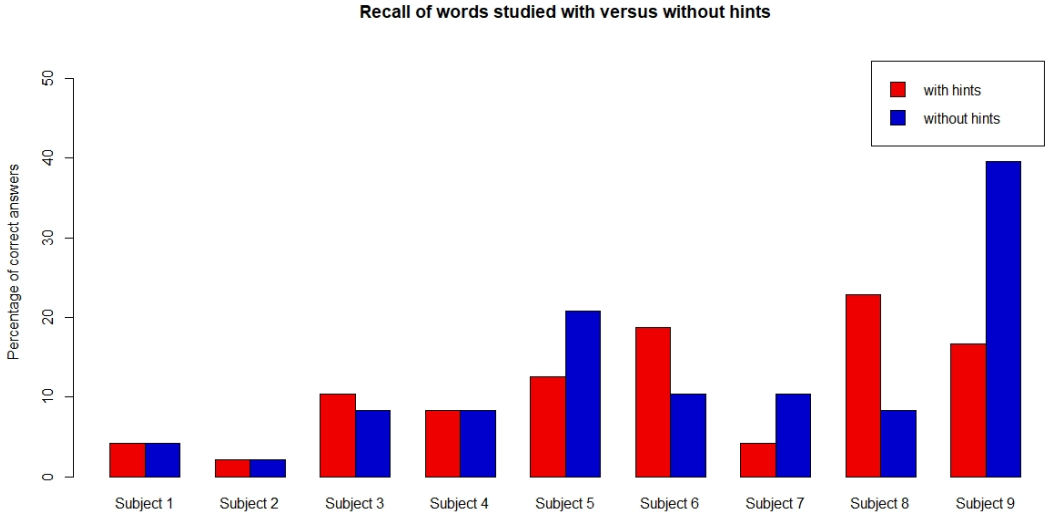
- Better recall for short than for long words

Results: studied with hints vs. without hints

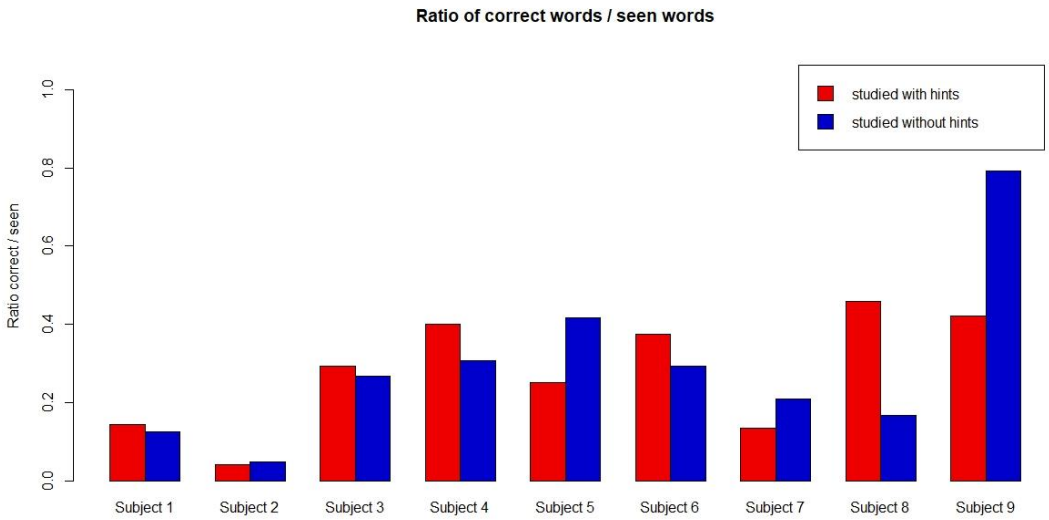


Mean(hints): **11.11**

Mean(no hints): **12.5**

Results of paired t-test: p = 0.7051

Results: ratio of (words correct)/(words seen) per condition

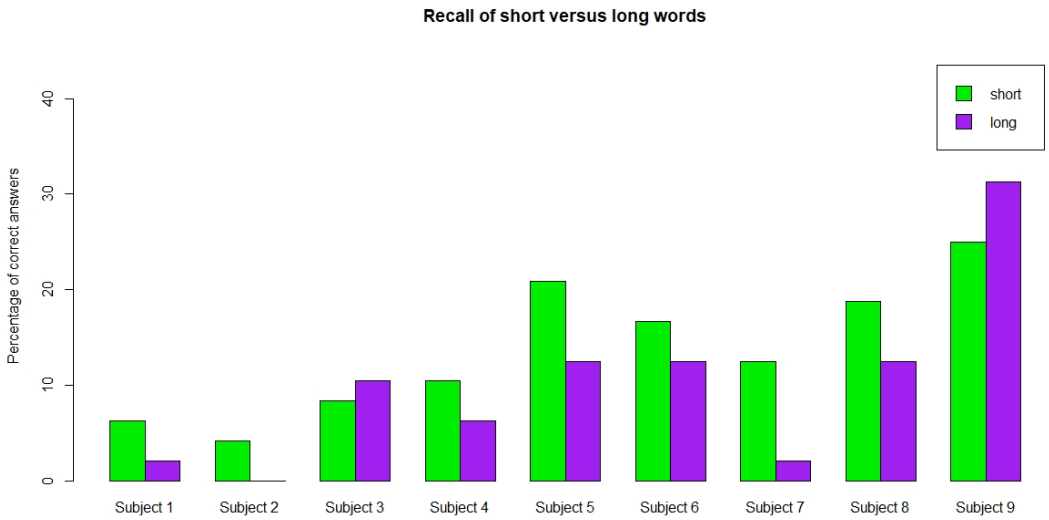


Mean(hints): **0.2796**

Mean(no hints): **0.29160**

Results of paired t-test: p = 0.8496

Results: short words vs. long words



Mean(short): **13.66**

Mean(long): **9.95**

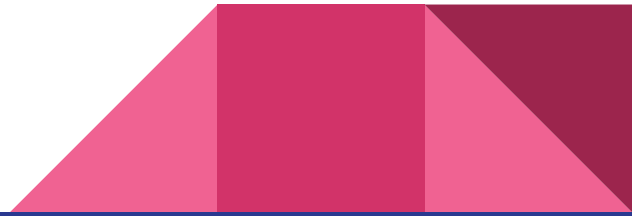
Results of paired t-test: p = 0.06016

Summary of results

- No significant results
- The difference between performance on short/long words shows lowest p-value, may be significant in larger subject pool
- No interaction between long/short and condition
- Small sample (N=9)

Discussion

- Number of participants
- Low skilled participants (dyslexia)
- Not necessary normal distribution (t-tests)
- Implementation details
- Some people don’t buy hints



Thank you for your attention :)