Fact Learning With Adaptive Color Palette: Effect of Stimuli-Independent Hints

(a short pitch)

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Introduction - Fact Learning

- Hints can (superficially) help learn faster Van den Broek et al. (2019)
- Color makes stronger connections (red = danger, green = nature) Chang et al. (2018)

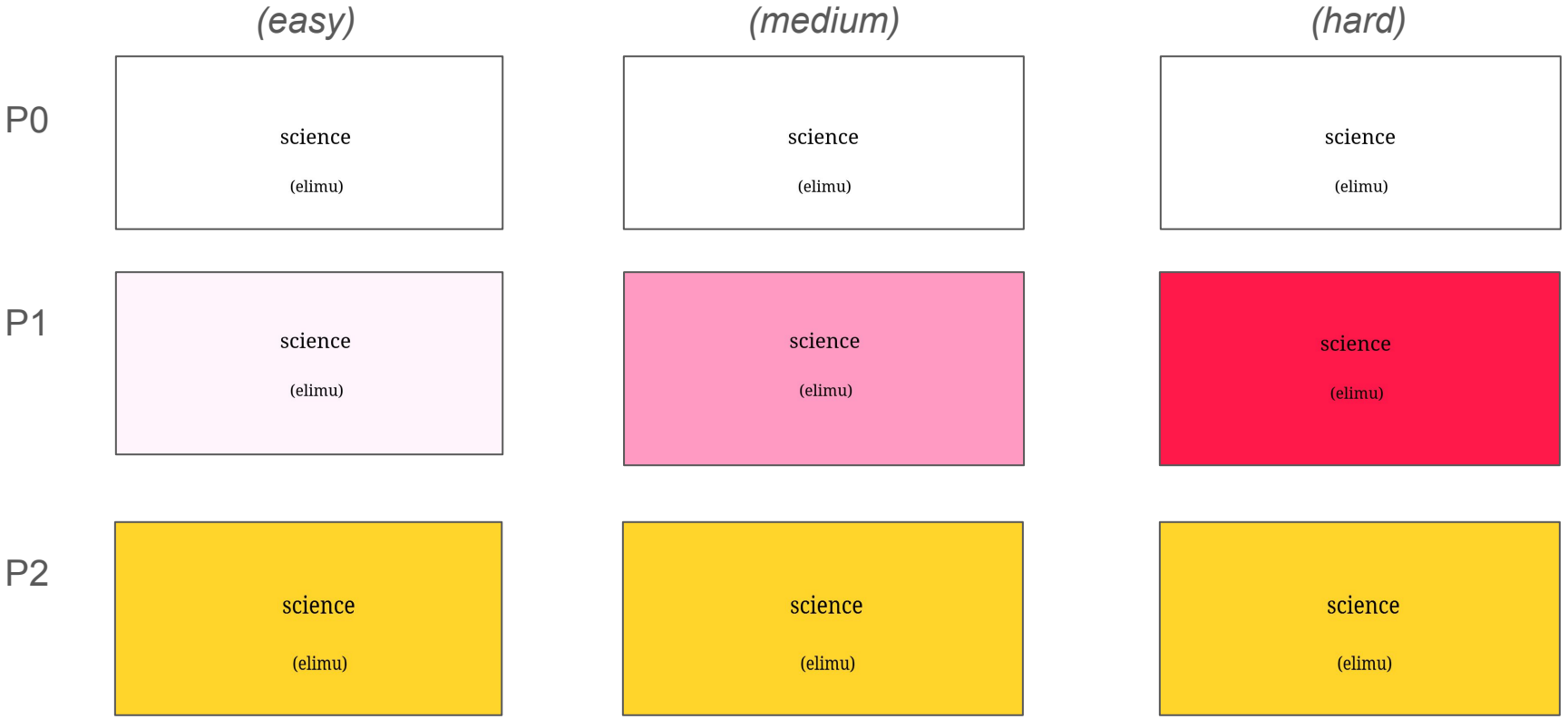
- Combine above:
  - Show a color whenever a word is displayed
  - Incorporate SlimStampen model to obtain difficulty of word to the user
  - Learn Swahili vocabulary

Factors & Experiment Design

Palette (between-subject):

- P0: no colour palette
- P1: colour palette chosen by the user
- P2: words have assigned random colors

Mock-up Design: Palette



Factors & Experiment Design (cont.)

Palette (between-subject):

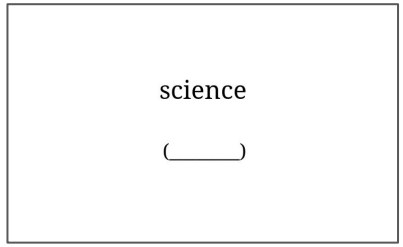
- P0: no colour palette
- P1: colour palette chosen by the user
- P2: words have assigned random colors

Evaluation (within-subject):

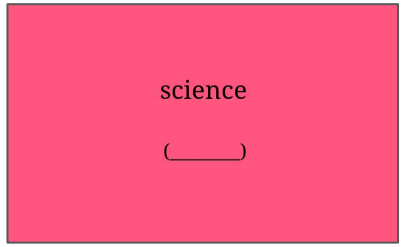
- E0: evaluation without any color cues
- E1: evaluation with the same scheme as the original
  - P1 and P2 only

5 conditions

E0

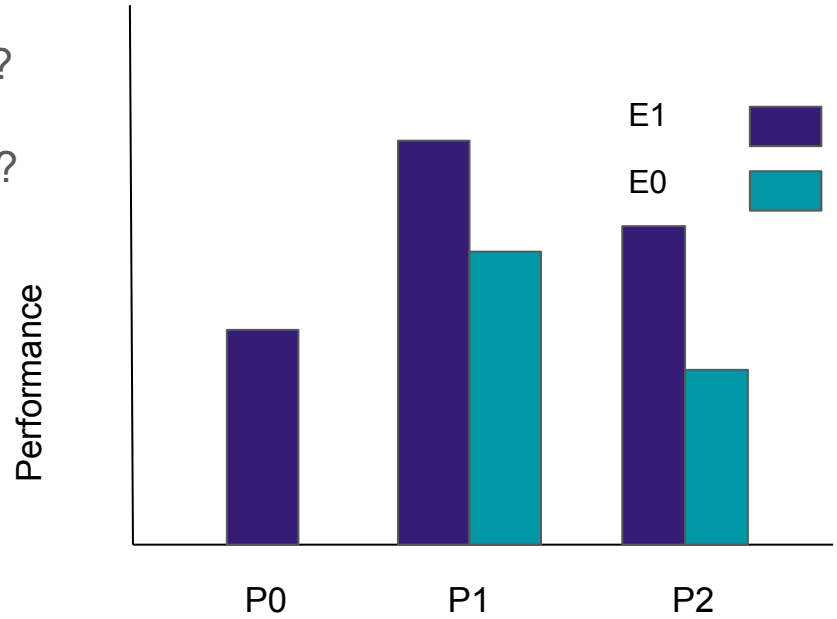


E1



Research Questions & Expectations

- Does having access to color palette help in learning?
  - $perf_{E0}(P1) > perf_{E0}(P0)$?
- Is palette access necessary in the testing?
  - $perf_{E1}(P1) > perf_{E0}(P1)$?
- Is palette access better than random mapping?
  - $perf_{E}(P1) > perf_{E}(P2)$?
- Can random mapping be better than no colors?
  - $perf_{E1}(P2) > perf_{E0}(P0)$?
  - $perf_{E0}(P2) < perf_{E0}(P0)$?



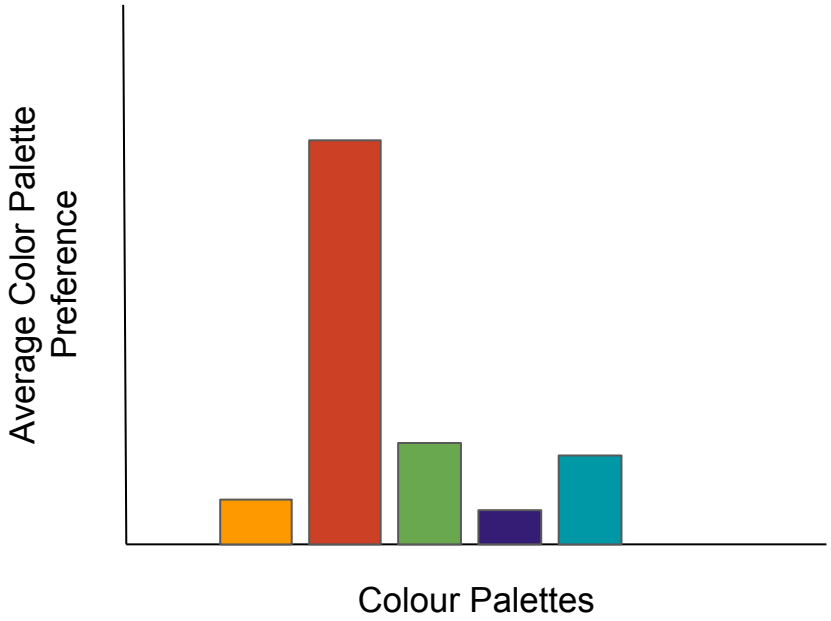
Hypotheses & Expected Results

- Higher performance among participants in the adaptive colour pallete condition (P1) with their own selection

- E1 will have better performance than E0 because of the similar reasons to those proposed by Van den broek (2019)

Pre-survey

- What color palette to use in P1?
- Do we all agree that there is one that corresponds to easy-difficult?



References

- Chang, B., Xu, R., & Watt, T. (2018). The impact of colors on learning.
- Van den Broek, G. S., Segers, E., Van Rijn, H., Takashima, A., & Verhoeven, L. (2019). Effects of elaborate feedback during practice tests: Costs and benefits of retrieval prompts. Journal of Experimental Psychology: Applied, 25(4), 588.