CHAIR OF
COGNITIVE PSYCHOLOGY
AND COGNITIVE AGING

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Emotionality effects in source memory: What are the effects of **age** and **experimental environment**

L13, 15, Room 420
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Hi, I‘m Nikoletta

- Post-Doc at the Chair for Cognitive Psychology and Cognitive Aging

- Main research interests
  - How do emotions influence our memory?
    - Is the impact different for older and younger adults?
  - How does context influence our memory?
    - Are these effects different for younger and older adults?
  - Statistical modeling of cognitive processes

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What was my project about?

Goal I

Can we improve older adults' source memory by using emotional material?

Aging & Memory

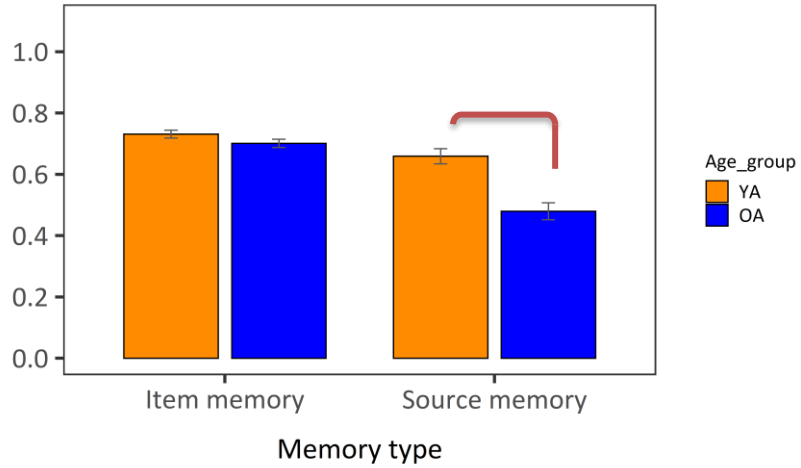
- "Older adults have worse memory." – Yes, **but**
  - Decline is mostly confined to episodic memory and **source memory**

- Source memory = Memory for the origin or context of an information

Older adults focus more on emotionally meaningful information

Motivational Changes?

Can we reduce this deficit by using emotionally meaningful sources?



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What was my project about?

Goal II

Are results replicable across different experimental environments (lab vs. online)?

Research in the Change of Times

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- Behavioral research studies are increasingly conducted online (e.g., Peer et al., 2021)

- In our own research team, we have sometimes failed to replicate robust age-related effects online (Kuhlmann et al., 2023)

Do age-related effects depend on the experimental setting?

And if so, why?

Overview of Goals

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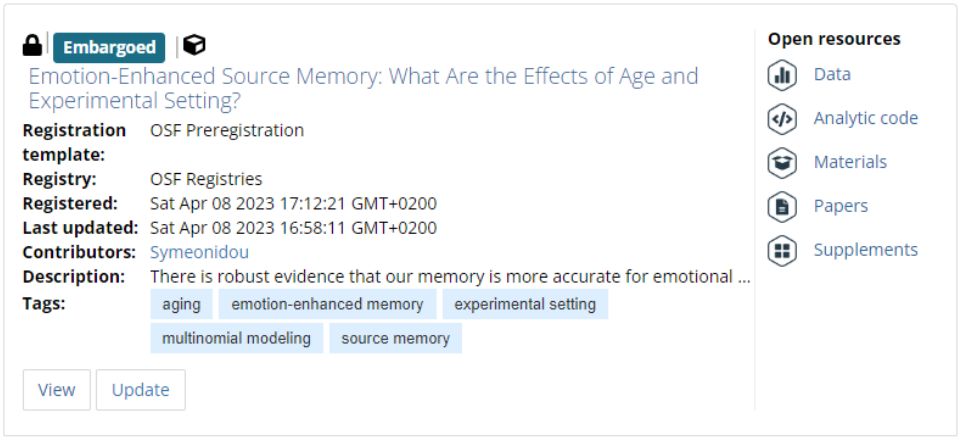
Goal I: Can we improve older adults memory by using emotional material?

Goal II: Does this work in the lab versus online setting equally well?

Do Open Science Practices change the way I conduct research?

Which Open-Science Methods have I used?



Method

Participants

Measure	Lab Study *(German)*		Online study *(English)*	
	YA (70)	OA (68)	YA (68)	OA (68)
Mean age	21.61 (2.43)	73.06 (6.80)	22.37 (1.71)	68.91 (3.26)
Range age	18 – 29	60 – 91	19 – 25	65 – 79
Pattern comparison *(processing speed)*	0.78 (0.11)	0.43 (0.14)	0.80 (0.10)	0.60 (0.12)
Vocabulary	0.67 (0.12)	0.84 (0.11)	0.41 (0.14)	0.67 (0.20)
Subj. Nearness to death *(1-5 scale)*	1.54 (0.96)	2.26 (1.25)	1.79 (0.99)	2.37 (1.12)

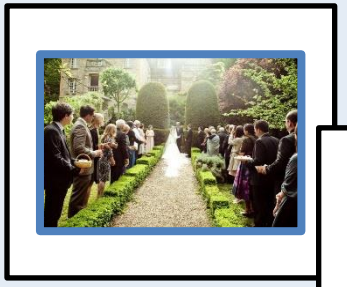
Sample size was based on a (preregistered) a priori power-analysis;

All eligibility and exclusion criteria were preregistered

Method

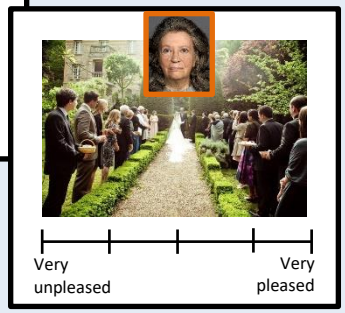
Study phase

"Imagine encountering this person in that scene."



750ms

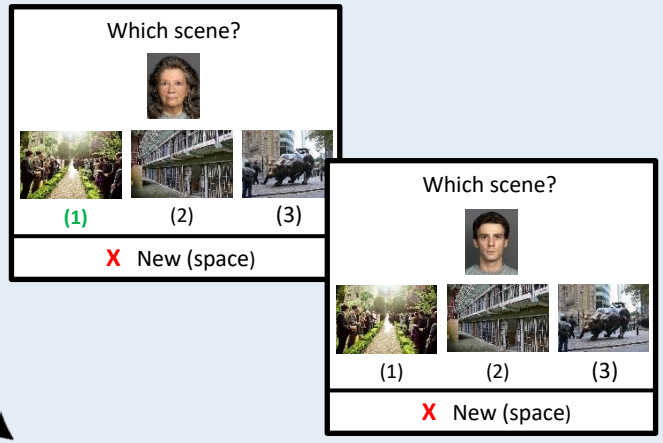
"How does this person feel?"



6000ms

Test phase

"With which scene was this face presented earlier or was it not presented at all?"



Items: 48 neutral **faces** of older vs. younger people

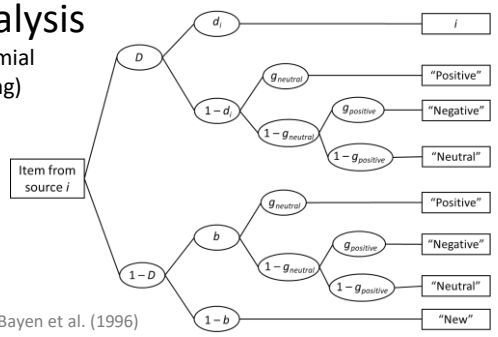
- 36 in study phase, +12 test phase Ebner et al. (2010)

Sources: 6 positive vs. 6 negative vs. 6 neutral **scenes**

Crone et al. (2018)

Data analysis

(multinomial modeling)

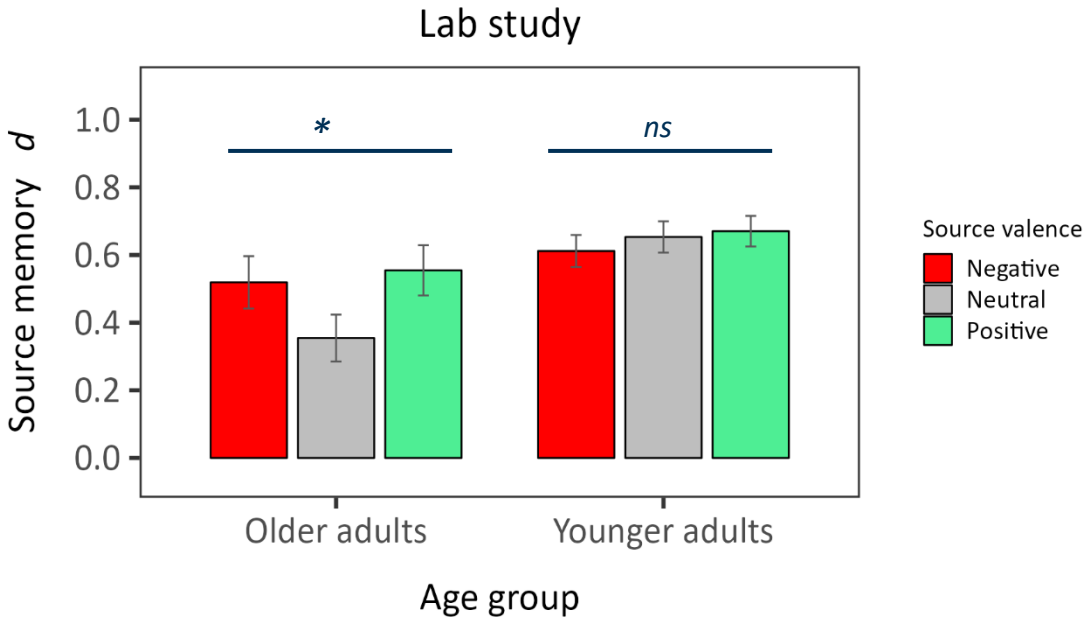


Bayen et al. (1996)

Normed

Results

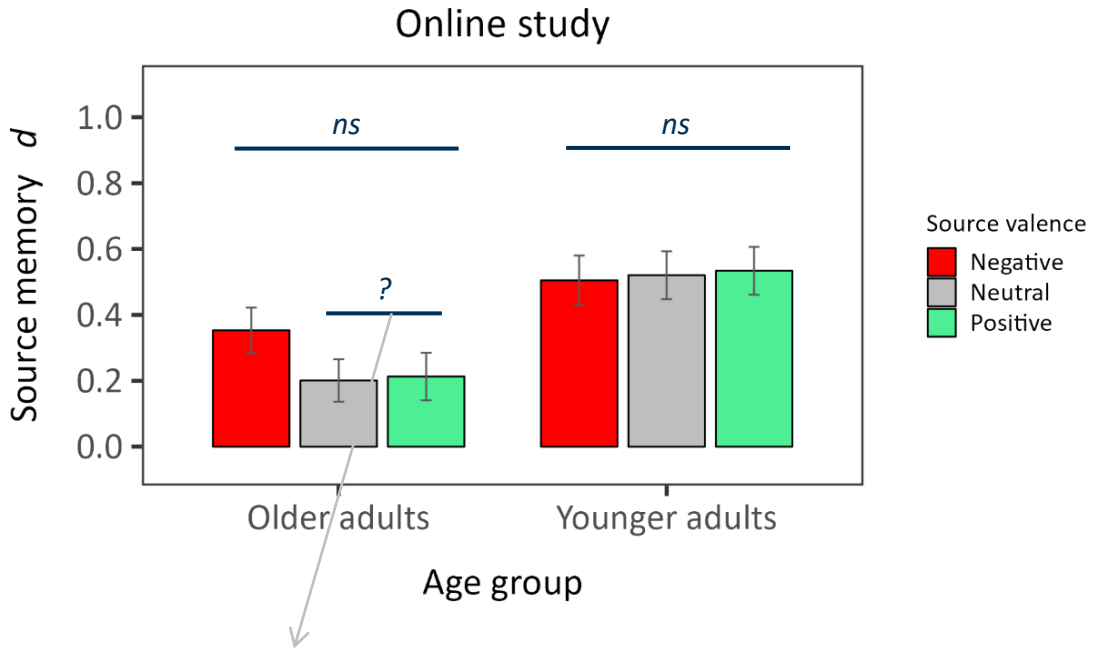
Goal I: Can we improve older adults memory by using emotional material?



1. Emotionality effect occurs in older, but not in younger adults
2. Older adults' source memory for the emotional sources equals younger adults' source memory

Results

Goal II: Does this work in the lab versus online setting equally well?



Inconsistencies esp. for positive source

1. No emotionality effect in younger AND in older adults ↔ lab results
2. Performance older adults online < older adults lab

Summary & Discussion

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- In the lab, older (but not younger adults‘) source memory benefited from emotional sources
  - To an extent that minimizes the age-related source memory deficit
  - Nice result, but inconsistent with previous research (see Symeonidou et al., 2022)
- This result pattern did not replicate in the online setting
  - Especially for positive sources in older adults – Why?
- Source memory performance was overall lower in the online compared to the lab sample, especially for older adults
  - Why?

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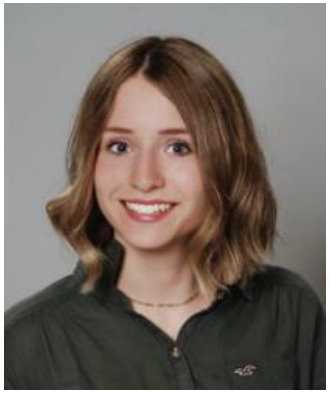
Thank you!

Amelie Scheidel



Katrin Schreckenberger

Miruna-Andreea Nicolaua

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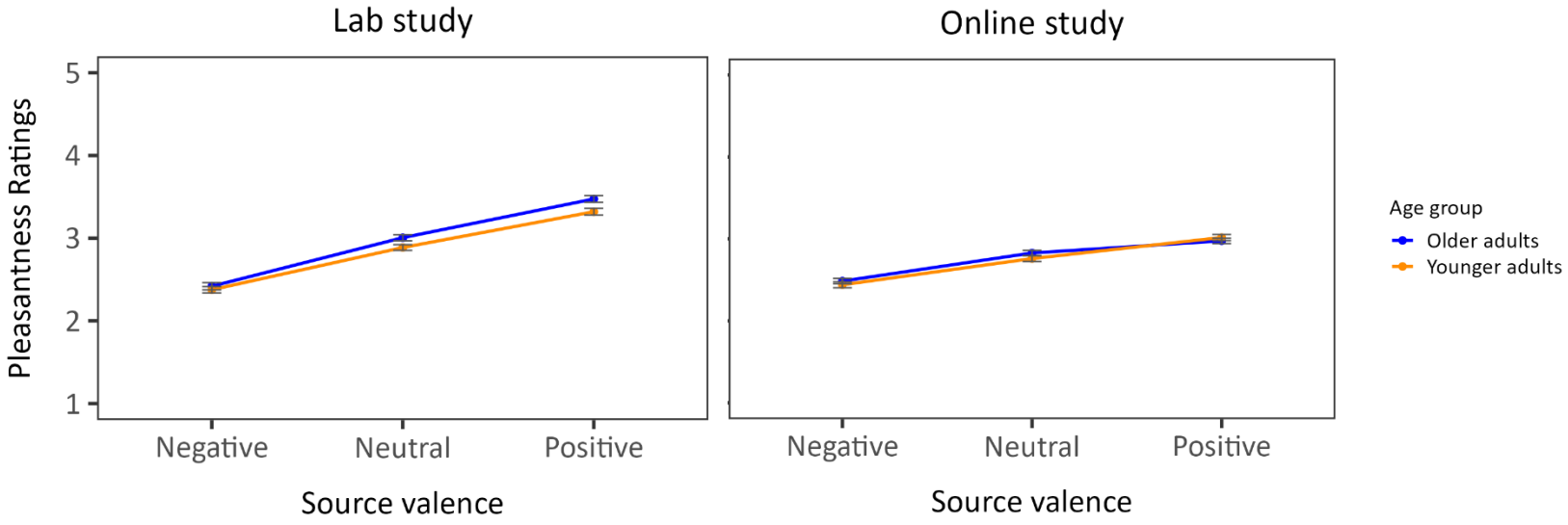
APPENDIX

Results

Pleasantness ratings



→ Seems that positive source did not „work well“ in the online setting

Data Analysis: 2HTSM

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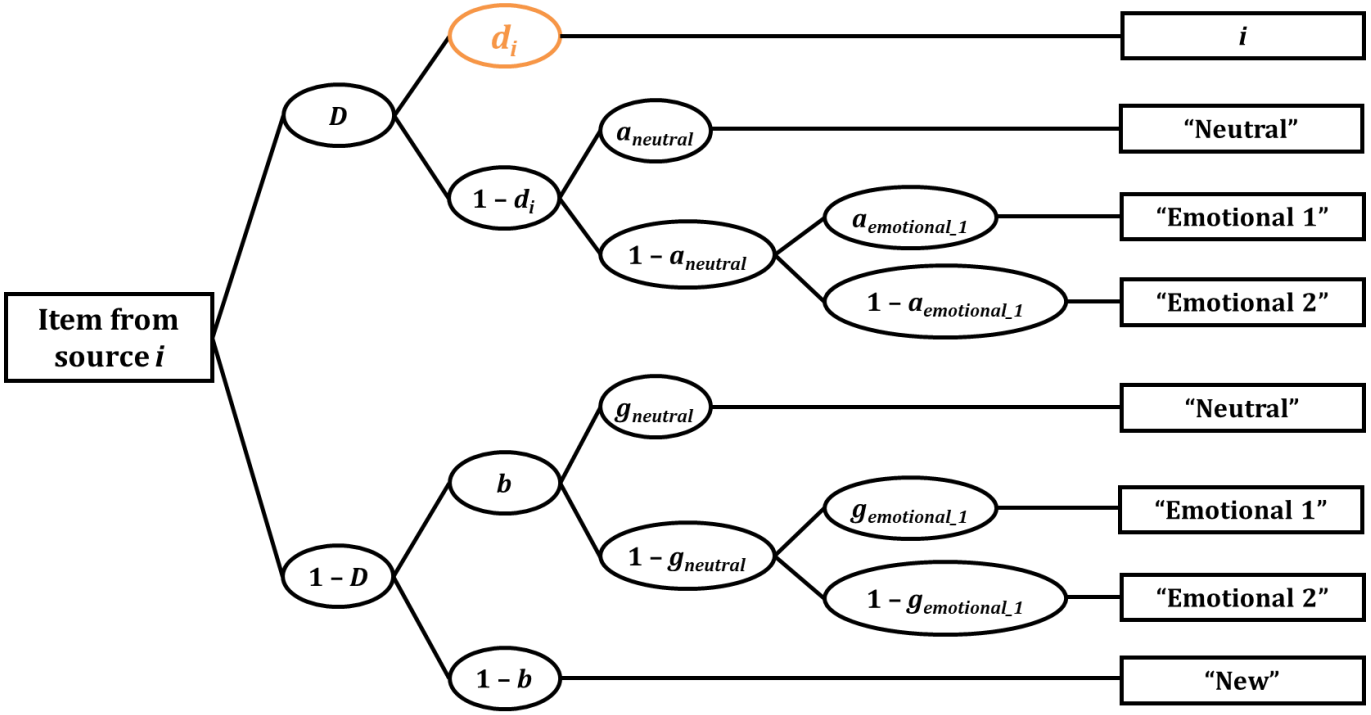
Two-high-threshold model of source-monitoring (2HTSM):

(Bayen et al., 1996; Keefe et al., 2002)



D : Item recognition
d : Source memory
b : Old/new guessing
a/g : Source guessing

Exemplar tree of the 2HTSM for an item stemming from source *i*

Reflection on Open Science Practices

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- Do OS-practices change the way I conduct research?
  – Yes

- Reluctance to change methodological aspects after preregistration
  - ⛔ Even if it makes sense

- ➕ Greater willingness to protocol every single step and decision (also to comment code etc.), more organized way of working