# To learn or not to learn: Spontaneous name learning strategies in young and older adults

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## Background

- People's names are notoriously challenging to learn, and associating a name to a face is more difficult than associating semantic information (e.g. McWeeny et al., 1987).
- These difficulties are accentuated by aging (Baressi et al., 1998; James, 2004; Old & Naveh-Benjamin, 2012).
- The status of the name's bearer, in terms of personal relevance, social importance and probability of future encounter, can modulate later recall in young and older participants (Hargis & Castel, 2017). However, the factors that modulate performance and encoding strategies deployed by different age groups remain unclear.

## Aims, Hypotheses & Predictions

- **Aims:** to assess the use of *cost-efficient learning strategies* by younger and older adults and to test the impact of *expected utility* on recall performance of personal details (first name and semantic information) associated with pictures of faces.
- **Hypothesis:** People are aware of memory limitations and of the difficulty of learning names, and so they might devote more memory resources to learn names (and semantic information) that are most likely to be useful in the future, based on the probability of future encounter.
- We used a cover story in which information about characters of a new TV show was available to review before viewing and judging excerpts of mock episodes of the series. Expected utility was manipulated via the importance label attached to the characters (i.e. main characters, secondary characters and bit parts).

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- **Prediction 1:** Main effect of Importance label on recall in young and older participants, i.e. main >= secondary character >= bits parts; with main > bit parts.
- **Prediction 2:** Main effect of Age, i.e. young > older participants.
- **Prediction 3:** Main effect of Type of information, i.e. semantic info > name.
- **Prediction 4:** Age by Type of information interaction, i.e. larger difference between age groups for the recall of names than for the recall of semantic info.

## Methods

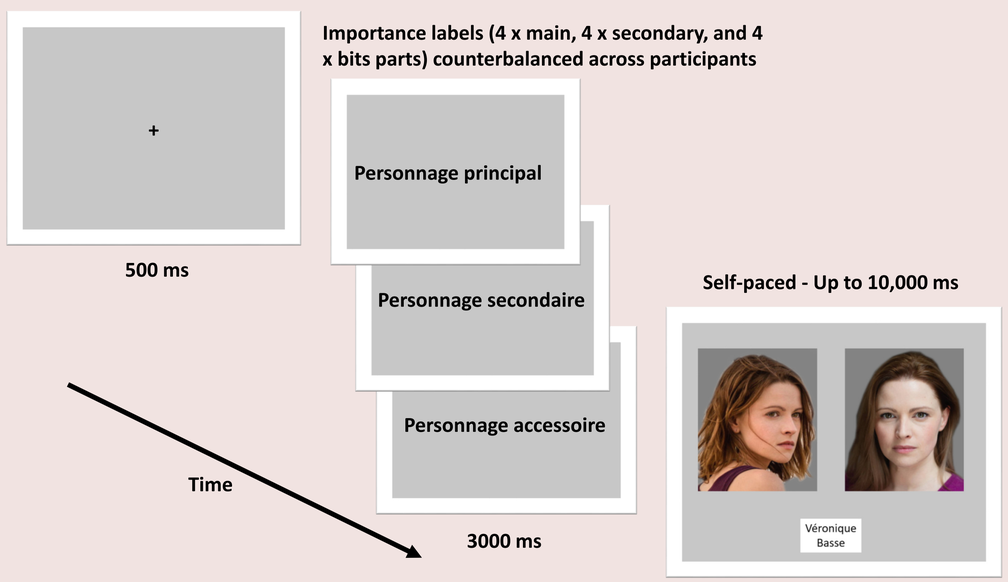
**P**articipants:

- 36 young participants (21 women, 15 men) aged between 18 and 29 (M = 23.03 ± 2.6)
- 36 old participants (16 women, 20 men) aged between 61 and 72 (M = 66.11 ± 3.07)

**M**aterials:

- 12 first names (6M, 6F) of equivalent frequency of use (6 bi- and 6 tri-syllabic).
- 12 pairs of pictures (6M, 6F) of people between 40 and 50.
- 12 instruments names.

**L**earning phase: 12 characters x 2 consecutive learning blocks




**I**nstructions: You will give your opinion on excerpts of episode mock-ups from a new French-speaking Belgian TV show about 12 friends who play music together in a band. To help viewing the excerpts, review the characters' information at your own convenience.

**C**ued recall phase - immediate

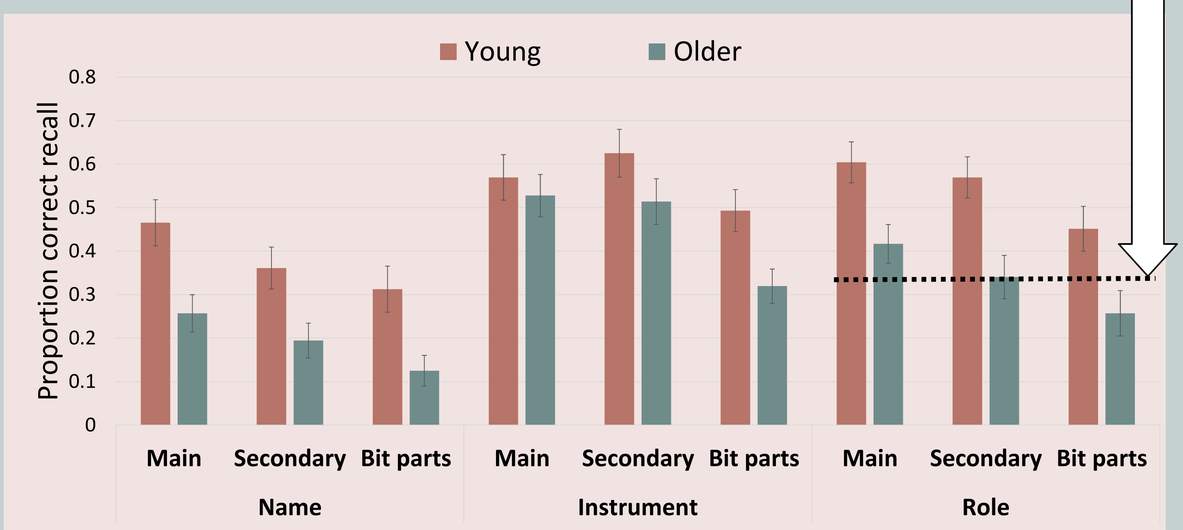

**I**nstructions: Recall as many information as you can about the 12 characters.

**P**ost-experiment question: Have you used any strategy to memorise information, and if so, which one?

## Results & Discussion

### Pre-planned analyses

2 Age group (young, older) x 3 Type of information (name, instrument, role) x 3 Importance label (main, secondary, bit parts) mixed ANOVA.




- Main effect of Importance label: **main // secondary > bit parts**; $F(2,140) = 16.312$, $p < .001$, $\eta_p^2 = 0.189$.
- Main effect of Age: **young > older**; $F(1,70) = 18.765$, $p < .001$, $\eta_p^2 = 0.211$.
- Main effect of Type of information: **instruments and roles > names**; **instruments > roles**; $F(2,140) = 29.886$, $p < .001$, $\eta_p^2 = 0.299$.
- No significant interaction, contrary to our prediction.

→ **People encode info depending on expected utility, regardless of their age.**

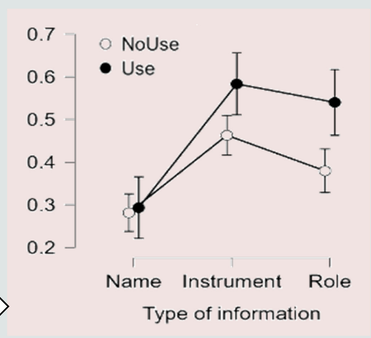
### Exploratory analyses

Although both young and older people use importance labels, older people are at chance level when recalling roles.

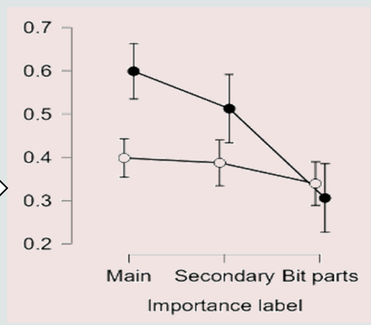
- **I**ndividual strategies (use, no use of importance labels):

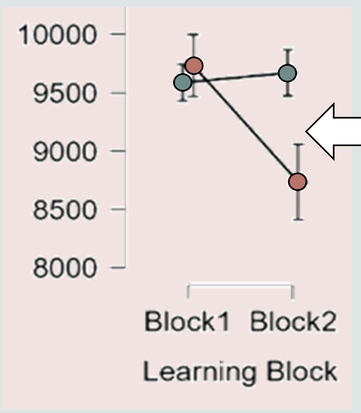
Main effect of Strategy: Those who report favouring important characters have better recall performance than those who use different or no encoding strategies, $F(1,68) = 6$, $p = 0.017$, $\eta_p^2 = 0.081$.

Strategy x Type of information interaction, $F(2,136) = 3.27$, $p = .041$, $\eta_p^2 = 0.009$, and mostly due to a better recall of roles, but not of names or instruments.




Strategy x Importance label interaction, $F(2,136) = 10.737$, $p < .001$, $\eta_p^2 = 0.022$, in that those who use Importance labels recall more information about main characters (and tended to do so about secondary characters) compared to those who discounted importance labels.




- **E**ncoding times (in ms):

Main effect of Learning block, qualified by an interaction with Age, $F(1,70) = 8.75$, $p = 0.004$, $\eta_p^2 = 0.111$.

So young people have better recall than older people despite spending less time learning.

Main effect of Importance labels, $F(2,140) = 3.95$, $p = 0.022$, $\eta_p^2 = 0.053$, due to people spending more time reviewing information on secondary characters than on bit parts.

## Implications & Limitations

- In line with a cost-efficient encoding strategy, participants of all age favour learning names and semantic information about people they are more likely to encounter in the future, to the detriment of others.
- Expected utility mostly modulates recall in individuals who report using importance/probability of future encounter during learning. As this observation is correlational, it is unclear if that strategy improves learning or if people with better memory skills are more likely to use it.
- Future research should investigate whether recall of names is worse than recall of semantic information because people also favour the latter that they deem more useful.

## References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