



Change in naming abilities between the ages of 50 and 90: The importance of analyzing naming latency

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INTRODUCTION

- 1 The question whether word naming difficulties may arise in individuals as young as their 50s is still debated. Indeed, according to Feyereisen (1997), these difficulties begin at the age of 70 whereas Connor et al. (2004) observed subtle signs of decreased naming performance in participants in their 50s. However, to our knowledge, no study has analyzed naming latencies in participants in their 50s in comparison with younger participants. We assume that such analyses may highlight more subtle difficulties in naming.
- 2 The explanation for naming difficulties in aging is also a matter of debate. According to some authors (e.g., Salthouse, 1996), these difficulties are a consequence of a general slowing in all cognitive functions, including language, in the elderly. However, other theories suggest that the relevant difficulties are more language-specific and are due to connection weaknesses across the entire language system, leading to more naming errors and longer naming latencies (e.g., Burke et al., 1991).

AIMS & HYPOTHESES

- 1 To uncover subtle naming difficulties in participants as young as in their 50s, naming latencies were analyzed in addition to naming accuracy. We predicted that the naming difficulties of participants in that decade might be subtle and could be revealed by longer naming latencies unaccompanied by any decrease in naming accuracy. We assumed that the age-related naming disadvantage may increase with age with the onset of naming errors. Thus, in participants above 70 years old, we expected to find both slower naming latencies and lower picture naming scores.
- 2 In order to control whether the expected slower naming latencies could not be due to a general slowing affecting all cognitive tasks, participants were also given an odd/even judgment task to assess cognitive processing speed.

PARTICIPANTS

4 groups of 30 participants

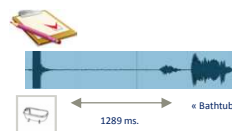
- 25-35 years old
 - 50-59 years old
 - 60-69 years old
 - ≥ 70 years old (70+)
- ✓ Matched for the Mill Hill and for socio-economic background
 - ✓ Native French speakers
 - ✓ No uncorrected hearing or visual problem
 - ✓ No
 - dementia (Mattis Scale > 130/144)
 - neurological, neuropsychological, cardiac or psychiatric disorder
 - medication use

TASKS

Picture naming task

150 black and white drawings (adapted from Bonin et al., 2003) presented on a computer screen

- Analyses:
- Number of correct responses
 - Correct Naming latencies



Odd/even judgment task

50 digits from 1 to 9 presented on a computer screen

Task = indicate whether the digits are odd or even by pressing a designated key

→ Analyses: response latencies



RESULTS

1 Age of onset of naming difficulties?

Number of correct responses in the picture naming task

- Effect of age: $F(3,116) = 35.36, p < .001$.
- Tukey post hoc comparisons ($p < .05$): **25-35 = 50-59 > 60-69 >> 70+**

Naming latencies

- Effect of age: $F(3,116) = 35.36, p < .001$.
- Tukey post hoc comparisons ($p < .05$): **25-35 > 50-59 = 60-69 >> 70+**

→ Subtle naming difficulties in participants in their 50s.

2 Slower naming latencies due to a general slowing?

Responses latencies in the odd/even judgment task

- Effect of age: $F(3,116) = 96.40, p < .001$.
- Tukey post hoc comparisons ($p < .05$): **25-35 = 50-59 > 60-69 = 70+**

ANCOVA using the latencies on the odd/even judgment task as covariate

- Effect of age: $F(4,115) = 54.56, p < .001$.
- Tukey post hoc comparisons ($p < .05$): **25-35 > 50-59 = 60-69 >> 70+**

→ The slowing of picture naming latencies remains significant even when cognitive processing speed is controlled for.
→ Specific age-related slowing on the picture naming task.

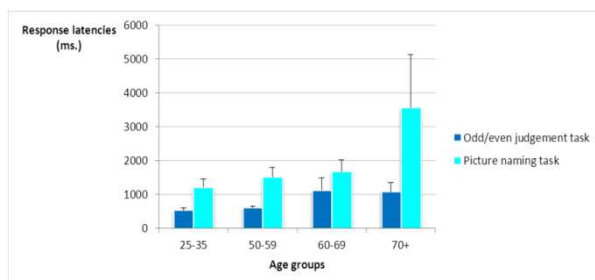


Figure 1. Mean response latencies on the picture naming and odd/even judgment tasks in the 25-35, 50-59, 60-69 and 70+ age groups

DISCUSSION

- 1 The increase in correct naming latencies on the picture naming task in participants in their 50s suggests the presence of subtle age-related word finding difficulties. In participants in their 60s, naming difficulties were highlighted by both a decrease in correct responses and an increase in naming latencies. Finally, in participants above 70 years of age, these difficulties became more pronounced in both naming accuracy and naming latencies.
→ These results support the importance of naming latency analyses in uncovering subtle naming difficulties.
- 2 Slowing on the picture naming task appears to be greater and to arise earlier in the adult lifespan (in participants in their 50s) than slowing on the odd/even judgment task assessing processing speed (in participants in their 60s). Moreover, this slowing of picture naming latencies in participants in their 50s remained significant even when processing speed was controlled for with an analysis of covariance.
→ Thus, although we do not exclude a possible impact of general slowing on naming latencies in participants above 50 years of age, these findings suggest that the slowing in naming at this age observed here may be explained by a specific age-related slowing on the picture naming task, probably within the language system.

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