Evolution of taxonomic and thematic links in semantic memory across the lifespan

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Introduction

Semantic memory contains general knowledge about the world that are progressively stored in a network across the lifespan.

Thematic and Taxonomic links are two complementary, but distinct systems in this network (Mirman, 2017).

In this study, we aim to explore the lifespan evolution of both systems.

Methodology

Population

<table>
<thead>
<tr>
<th>Age</th>
<th>Sample</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 yo</td>
<td>Adults</td>
<td></td>
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<tr>
<td></td>
<td>Elderly</td>
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<tr>
<td>7 yo</td>
<td>Adults</td>
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<tr>
<td></td>
<td>Elderly</td>
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</tr>
<tr>
<td>9 yo</td>
<td>Adults</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elderly</td>
<td></td>
</tr>
</tbody>
</table>

Material

16 natural objects
16 manufactured objects
3 tasks

1. Match-to-sample task
Choose among the 4 pictures, the one that fits best

2. Lexical fluency task
Say the first 3 words that come to your mind when you hear...

3. Semantic knowledge questionnaire (SKQ)
Answer to taxonomic and thematic questions

Results

Kruskal-Wallis and Mann-Whitney tests were used to screen inter-groups differences. Wilcoxon tests were computed to check the differences between taxonomic and thematic answers in each group.

Discussion and conclusions

Results show the evolution and predominance of the thematic system across the lifespan while taxonomic system only evolves in childhood. However, only at age 9, we observe a balance between taxonomic and thematic choices in the match-to-sample task. We believe that learning of formal knowledge at school at this age would make taxonomic knowledge more readily available, allowing a balance between taxonomic and thematic answers.

Some limits can be pointed: cross-sectional comparisons of the groups can reflect educational, cultural or environmental differences.