**Bilingualism and Language-Specific Attention Control**

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**INTRODUCTION**

- Previous research revealed a bilingual benefit on non-linguistic tasks of attention and executive control (Bialystok, 2008).
- The present study examines the generalizability of this finding to bilingual based attention tasks.
- We focus on language-specific attention tasks, as opposed to tasks where language directs attention to the non-linguistic environment.
- A language attention task is one where relational words such as spatial prepositions direct the message recipient’s way of focusing attention on the relationship between semantic words in the message.
- In our task, participants alternate between two tasks (A and B) involving judgments about sentences in the sequence AABBAA, such that every other trial is a shift trial (S) or a repeat trial (R).

- The difference in RT to perform shift versus repeat trials provides a measure of the shift cost – the burden of shifting attentional focus from one task to the other.

- Research (Taube-Schiff & Segalowitz, 2005b) shows that it is possible to use this task to distinguish a form of language-specific AC from more general AC, by comparing switch costs for relational stimuli to those for semantic stimuli, respectively.

The current study investigated whether bilingual adults have better linguistic attention control abilities, using a language-specific AC switching task.

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**RESULTS AND DISCUSSION**

**NEUROPSYCHOLOGICAL TASKS**

<table>
<thead>
<tr>
<th></th>
<th>Bilingual Mean (sd)</th>
<th>Monolingual Mean (sd)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simon Task (Incongruent - Congruent, in ms)</td>
<td>39 (21.9)</td>
<td>27 (40.4)</td>
<td>.381</td>
</tr>
<tr>
<td>WAIS-III Vocabulary (Max 63)</td>
<td>53 (8.1)</td>
<td>56 (4.9)</td>
<td>.262</td>
</tr>
<tr>
<td>WISC-III Letter-Number Sequencing (Max15)</td>
<td>14 (3.2)</td>
<td>14 (3.7)</td>
<td>.839</td>
</tr>
<tr>
<td>Comprehensive Trail Making Task (Trail 5 RT - Trail 1 RT, in ms)</td>
<td>-4 (10.5)</td>
<td>1 (12.9)</td>
<td>.186</td>
</tr>
</tbody>
</table>

- Bilingual and monolingual young adults did not differ on neuropsychological tasks of executive functioning and attention control (Simon task, Comprehensive Trail Making Task), working memory (Letter-Number sequencing) or L1 Vocabulary.

**LANGUAGE SPECIFIC ATTENTION CONTROL TASK**

- There was no significant between-groups difference for bilingual and monolingual adults.
- Planned comparisons revealed that switch costs for bilingual adults did not differ between relational and semantic conditions, whereas monolingual adults had significantly larger switch costs in the relational condition compared to the semantic condition.

**CONCLUSIONS**

- Bilinguals and monolinguals did not differ on baseline neuropsychological measures (LNS, Vocabulary), or tests that have found a bilingual benefit in the past (Bialystok, 2009). Interestingly they did differ on our language-specific attention control task.
- Monolingual adults had a significantly larger switch cost in the relational condition than the semantic condition, demonstrating switching between the attention-directing elements of language required additional attention control.
- Bilingual adults did not have a significant difference between their relational and semantic condition shift costs.
- Bilingual adults appear to be more proficient at switching their attention between the relational elements of language than monolingual adults. This suggests that being bilingual has a positive affect on attention processing in one’s first language.

**REFERENCES**


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**PARTICIPANTS**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Age (years) M (sd)</th>
<th>Education (years) M (sd)</th>
<th>L2 self-rating (out of 5) M (sd)</th>
<th>L2 age of acquisition (years) M (sd)</th>
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</thead>
<tbody>
<tr>
<td>Young Monolingual</td>
<td>22</td>
<td>25.1 (4.29)</td>
<td>15.3 (1.11)</td>
<td>1.3 (0.55)</td>
<td>N/A</td>
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<td>Young Bilingual</td>
<td>19</td>
<td>24.0 (4.55)</td>
<td>16.4 (1.30)</td>
<td>4.36 (0.76)</td>
<td>0.9 years 1.8 (2.68)</td>
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<td>Older Monolingual</td>
<td>23</td>
<td>71.4 (5.57)</td>
<td>13.7 (2.08)</td>
<td>1.45 (1.25)</td>
<td>N/A</td>
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<tr>
<td>Older Bilingual</td>
<td>23</td>
<td>68.4 (4.26)</td>
<td>16.5 (3.02)</td>
<td>4.5 (0.55)</td>
<td>5.9 years 6.6 (2.31)</td>
</tr>
</tbody>
</table>

- Bilinguals:
  - highly proficient in both languages
  - actively using both languages
  - at most, minimal competency in a 3rd language
  - learned both languages before 12
  - 07 YB and 09 OB learned simultaneously
  - 10 YB and 11 OB learned English first
  - 02 YB and 03 OB learned French first

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