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### Supplemental File to: The specificity of associations between cognition and attainment in English, maths and science during adolescence

**Table S1:** Component loadings in final raw complete case data principal component analysis (PCA) (N=1,726). PC: principal component; RT: reaction time.

<table>
<thead>
<tr>
<th>Variable description</th>
<th>PC1</th>
<th>PC2</th>
<th>PC3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Slow Processing</td>
<td>Inhibitory Control</td>
<td>Working Memory</td>
</tr>
<tr>
<td>Digit vigilance RT (age 13)</td>
<td>0.79</td>
<td>-0.06</td>
<td>0.14</td>
</tr>
<tr>
<td>Choice RT (age 13)</td>
<td>0.78</td>
<td>0.04</td>
<td>-0.06</td>
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<tr>
<td>Simple RT (age 13)</td>
<td>0.74</td>
<td>0.01</td>
<td>-0.09</td>
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<tr>
<td>Stop Signal Go trials RT (age 10)</td>
<td>0.40</td>
<td>0.22</td>
<td>-0.10</td>
</tr>
<tr>
<td>Stop Signal number of correct Stop trials (age 15)</td>
<td>-0.10</td>
<td><strong>0.82</strong></td>
<td>0.12</td>
</tr>
<tr>
<td>Stop Signal Go trials RT (age 15)</td>
<td>0.13</td>
<td><strong>0.80</strong></td>
<td>-0.04</td>
</tr>
<tr>
<td>Stop Signal number of correct Go trials (age 15)</td>
<td>0.03</td>
<td>-0.67</td>
<td>0.12</td>
</tr>
<tr>
<td>2-back accuracy (age 17)</td>
<td>-0.06</td>
<td>0.00</td>
<td><strong>0.68</strong></td>
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<tr>
<td>Digit Vigilance d-prime (age 13)</td>
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<td>0.01</td>
<td><strong>0.64</strong></td>
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<tr>
<td>Counting Span score (age 10)</td>
<td>-0.07</td>
<td>0.05</td>
<td><strong>0.59</strong></td>
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<tr>
<td>RT (3-back – 2-back)/(2-back) (age 17)</td>
<td>0.03</td>
<td>-0.01</td>
<td><strong>0.52</strong></td>
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<tr>
<td>Dual task decrement score (age 11)</td>
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<td>-0.03</td>
<td><strong>0.33</strong></td>
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<tr>
<td>Eigenvalues</td>
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<td>1.83</td>
<td>1.81</td>
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<tr>
<td>% of variance explained</td>
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<td>14%</td>
<td>14%</td>
</tr>
<tr>
<td>$\alpha$</td>
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<td>0.66</td>
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**Table S2:** Correlation matrix with raw complete case data

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<th>11</th>
<th>12</th>
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<td>4. Inhibitory Control</td>
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<td>-0.03&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>5. Working Memory</td>
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<td>0.21</td>
<td>-0.02&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>6. Slow Processing</td>
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<td>13. English 16</td>
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<td>0.21</td>
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<td>-0.21</td>
<td>0.64</td>
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<td>14. Maths 16</td>
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<td>0.48</td>
<td>0.29</td>
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</table>

<sup>a</sup> Non-significant correlation; all other p-values < .05.
**Figure S1:** Complete case data structural equation model of cognitive predictors of English, maths and science attainment at age 16 controlling for socio-economic status and attainment at age 11. Figures in boxes are beta values, with standard errors in brackets. \(^{a} p < .05\) (black dashed lines), \(^{b} p < .01\) (thin full black lines), \(^{c} p < .001\) (thick full black lines), non-significant paths are shown with grey dashed lines. IC: inhibitory control; PS: processing speed; RT: reaction time; SES: socio-economic status; SS: Stop-Signal task; WM: working memory. The model fit the data very well: \(\chi^2(152) = 438.925, p < .001\); Comparative Fit Index = .959; Root Mean Square Error of Approximation = .041 [.036, .045]; Standardised Root Mean Squared Residuals = .039 with Degrees of Freedom = 152. Total variance explained by this model in English at age 16 was 57%, in maths 60% and in science 56%.