The Relationship between Child Temperament & Conversational Language
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ABSTRACT
This study of approximately 170 twin pairs from the Western Reserve Reading Project examined the association between children’s conversational language use and three key aspects of child temperament: surgency, effortful control, and negative affect. Although preliminary analyses using hierarchical regression revealed a significant 3-way interaction between language, surgency, and sex, the interaction term was no longer significant when focused on the current larger sample size. Current findings revealed that only one facet of surgency, shyness, was negatively correlated with commonly-used conversational language measures but the effect size was small. Results suggest that conversational language sample measures are not substantially confounded by child temperament.

PARTICIPANTS
– Approximately 170 same-sex twin pairs (~60% girls) from the Western Reserve Reading Project (WRRP), a longitudinal population-based study of reading and related cognitive abilities.
– Children were in first or second grade (M = 7 yrs, SD = .70) during the second home visit (HV2), with the third home visit (HV3) occurring approximately one year later.

PROCEDURES
Conversational Language Sample – a 15-minute exchange between examiner and child while the two played with modeling clay; collected both at HV2 & HV3
Conversational Language Composite: Measures of Mean Length of C-Unit (MLU-C), Number of Total Words (NTW), Number of Different Words (NDW), and Total Number of Conjunctions (TNC) were converted to z-scores and averaged into a composite
Measure D (D: Malvern & Richards, 1997) was examined separately due to its reported independence from volatility
Children’s Behavior Questionnaire-Short Form (OBC; Putnam & Rothbart, 2000) – Completed by children’s primary caregiver between the twins’ second and third annual home visit. Items load on 3 primary factors, each with individual facets. See Fig. 1 for an example.

ANALYSES/RESULTS
Table 1. Means and standard deviations for the individual conversational language measures at home visit 2 (HV2) and home visit 3 (HV3)

<table>
<thead>
<tr>
<th>Measure</th>
<th>HV2 Mean</th>
<th>HV3 Mean</th>
<th>HV2 SD</th>
<th>HV3 SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLU</td>
<td>5.66</td>
<td>5.83</td>
<td>(1.21)</td>
<td>(1.45)</td>
</tr>
<tr>
<td>NDW</td>
<td>191</td>
<td>199</td>
<td>(28)</td>
<td>(29)</td>
</tr>
<tr>
<td>NTW</td>
<td>526</td>
<td>547</td>
<td>(18)</td>
<td>(18)</td>
</tr>
<tr>
<td>TNC</td>
<td>37</td>
<td>41</td>
<td>(19)</td>
<td>(20)</td>
</tr>
</tbody>
</table>

Consistent with the decision to form the conversational language composites, correlations across all language measures, except D, were strongly correlated, ranging from .68-.92 at HV2 and from .75-.95 at HV3.
To address the specific study questions, each member of the twin pairs was put into a separate sample to serve as a form of replication; the samples will be referred to as sample 1 and sample 2 respectively.
Effortful Control and Negative Affect – Neither factor nor their individual facets correlated significantly with the conversational language composites at HV2 or HV3 in either twin sample. The same null result was true for boys and girls.
Surgency – Only one facet of Surgency, Shyness, was significantly correlated with the conversational language composite across the two samples, and that was only in girls at HV3. See Table 1 for specific coefficients by sex.

Table 2. Correlation between Shyness and the Conversational Language Composites at HV2 and HV3 by Sex

<table>
<thead>
<tr>
<th>Measure</th>
<th>Sample 1</th>
<th>Sample 2</th>
<th>Sample 1</th>
<th>Sample 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls</td>
<td>-.11</td>
<td>-.21*</td>
<td>-.24*</td>
<td>-.22*</td>
</tr>
<tr>
<td>Boys</td>
<td>.05</td>
<td>.11</td>
<td>.03</td>
<td>-.25*</td>
</tr>
</tbody>
</table>

Denotes significance at .05

CONCLUSIONS
In sum, temperament factors did not account for differences in children’s conversational language use. The one exception was the tendency for shy girls to show less complex conversational language skills, but effects were small, accounting for approximately 5% of language variance.
Results suggest that conversational language measures are not significantly confounded by aspects of child temperament, including surgency (i.e., extraversion). Consequently, attempting to control for volubility in language sample measures may be unnecessary and in some instances even counterproductive.

REFERENCES

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