Examination of the Impact of Bilingualism on the Metalinguistic Skills of 3- to 8-Year-Old Children
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Background
- Metalinguistic awareness reflects the ability to think about and reflect on language.
- Researchers have found positive correlations between metalinguistic skills and bilingualism, with children with higher levels of language proficiency outperforming those with lower levels of proficiency (Bialystok & Barac, 2011).
- Previous studies have primarily focused on a single age group and limited number of language pairs.
- The current study aimed to examine the language and metalinguistic skills of 3- to 8-year-old children who are bilingual compared to monolingual peers.

Participants
  - Language 2 spoken 30%-49.9% of the time (n = 12)
  - Language 2 spoken 50%-74.9% of the time (n = 9)
- Languages Spoken
  - Spanish (n = 11)
  - Chinese (n = 3)
  - Japanese (n = 2)
  - French (n = 2)
  - Vietnamese (n = 1)
  - Amharic (n = 1)
- Groups matched on gender, native language, ethnicity, and socioeconomic status.

Method
- Recruitment took place at the Minnesota State Fair in a university-sponsored building dedicated to research.
- Research assistants administered a nonverbal cognitive test, expressive language test, and metalinguistic probe to participants in 30-minute intervals.

Tasks
- Clinical Evaluation of Language Fundamentals (CELF-4; Semel, Wiig, Secord, 2003), Recalling Sentences (RS) subtest: assesses expressive syntax and morphology.
- Kaufman Brief Intelligence Test (KBIT-2; Kaufman & Kaufman, 2004), Matrices subtest: assesses nonverbal cognitive abilities.
- Metalinguistic Probe: evaluates ability to analyze and manipulate vocabulary and grammatical forms. See description of tasks below.

Discussion
- Overall, study results suggest that metalinguistic awareness improves with age, but that bilingual children may not have a metalinguistic advantage.
- Children who were bilingual did not outperform those who were monolingual. This may be due to heterogeneity in language spoken and/or amount of use levels, which ranged from 30%-80%; however, there were no significant correlations between use and performance on key variables.
- The significant effect for age indicates developmental changes in metalinguistic skills. It is likely that some tasks were too easy for older children such that there was no differentiation between 5-6 Year and 7-8 Year Groups.
- Further research is needed which includes more participants that can be grouped by levels of language proficiency. Future studies should also include more developmentally complex metalinguistic tasks.

Results
- Multivariate analysis revealed no significant effect for language status, F(4, 31) = 0.77, p = .55.
- There was a significant effect for age, F(8, 62) = 7.19, p < .01, characterized by the 3-4 Year Group scoring significantly lower than the other ages across all tasks.
- No significant interactions between language status and age, F(8, 62) = 0.34, p < .95.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>3-4 Year Group</th>
<th>5-6 Year Group</th>
<th>7-8 Year Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr)</td>
<td>Mean 3.92 SD .67</td>
<td>Mean 3.83 SD .58</td>
<td>Mean 4.00 SD .58</td>
</tr>
<tr>
<td>Gender</td>
<td>Male:Female 5:3</td>
<td>Male:Female 5:3</td>
<td>Male:Female 5:3</td>
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<tr>
<td>Income</td>
<td>&lt;$50k:50k 5:3</td>
<td>&lt;$50k:50k 5:3</td>
<td>&lt;$50k:50k 5:3</td>
</tr>
<tr>
<td>Race</td>
<td>White:Other 4:1</td>
<td>White:Other 3:2</td>
<td>White:Other 3:2</td>
</tr>
<tr>
<td>KBIT: Raw Score</td>
<td>Mean 12.37 SD 4.46</td>
<td>Mean 12.14 SD 4.36</td>
<td>Mean 12.68 SD 4.73</td>
</tr>
<tr>
<td>CELF: RS Standard Score</td>
<td>Mean 12.50 SD 1.41</td>
<td>Mean 12.14 SD 1.77</td>
<td>Mean 11.60 SD 1.89</td>
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