Measuring Syntactic Complexity Across Three Writing Tasks
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BACKGROUND
Written language production can be especially problematic for children with language impairments (Allan & Crowe, 1982; Gilbar & Johnston, 1982; Scott & Windsor, 2006). Challenges for assessing syntactic maturity in free writing tasks: • Between-student variation unrelated to ability • Within student variation from sample to sample • Poor reliability between raters (Browne, 1981) • Influence of sampling task on syntactic complexity (Nelson, 1970; Ceci & Porac, 1975; Aller & Crowe, 2006; Scott & Windsor, 2009)

METHODS
Participants (N=104): 2nd, 4th, 6th, and 9th grade students from 2 Midwestern school districts, one urban and one rural. Range of language abilities, including 83 typically developing, and 21 with the following special education labels: Sp-Lang Imp, ADD/ADHD, Emot Imp, LD, Cog Imp, Hrg Imp, and ASD.

Sampling methods: Three probe methods were used to elicit samples of written language on 3 consecutive days.
Day One: Original Story (OS) Unconstrained 60 minute task: "Write a real or imaginary story about characters who have a problem and what they do about it." Day Two: Sentence Combining (SC) Constrained 10 minute task: Put "choppy notes" together to write an interesting story for the school newspaper. Stimulus items presented in simple sentences. Day Three: Graphic Organizer (GO) Constrained 10 minute task: Put "choppy notes" together to write an interesting story for the school newspaper. Stimulus items presented in story planner format with WH-questions and sentence fragments.

Measurement techniques: Six objective measures of syntax and productivity were used, and then used to evaluate sampling methods.
1. Mean Length of T-Unit (MLTU): average length of T-units 2. Kernel Sentence Index (KSI): computed variable depicting the average number of stimulus content units 3. Total length in words (TW): count of words in composition 4. Total conjunctions (TOT CON): count of conjunctions and relative pronouns in composition 5. Type of conjunctions (TYP CON): number of different conjunctions and relative pronouns in composition 6. Scott’s Syntactic Complexity Index (SSCI): coded and computed variable depicting the complexity of average T-units in terms of levels of combining and embedding of elements.

RESULTS AND DISCUSSION

1. Sentence Combining is a valid method for reflecting growth in written language samples of school-age children.
2. As the written language ability of students matures, their compositions tend to contain: more words; higher occurrences of a variety of conjunctions; and more instances of sentence combining, subordination, and embedding.
3. Mean length of T-unit is an easily computed indicator of general syntactic growth.
4. Total Words, Total Conjunctions, and Type of Conjunctions are strong indicators of growth, especially when using a Sentence Combining Task.

RESEARCH QUESTIONS
1. Does each sampling method (SC, GO, OS) capture evidence of development, as indicated by a significant grade level effect for one or more measurement techniques? 2. Which sampling method (SC, GO, OS) is most sensitive to development evidenced by significant difference between adjacent grades (2nd-4th, 4th-6th, 6th-9th) on one or more of the measurement techniques? 3. Considering all the information, is one of the 10-minute constrained methods preferable as represented by a trend for scores to advance steadily with grade level and by higher sensitivity to growth between adjacent grades?