



Introduction

- Spelling is a complex linguistic skill requiring phonological awareness, orthographic knowledge, morphological knowledge, and the ability to store adequate mental graphemic representations.
- The traditional metric, Percent Words Correct, is unable to capture increasing levels of sophistication across various misspellings.
- The purpose of this study was to gather preliminary evidence about an alternative metric's usefulness in documenting developmental changes across elementary grade levels.

Spelling Data

- The Spelling Performance Evaluation for Language and Literacy (*SPELL*) was administered to children in Grades 1-6 for 3 years as part of a larger study focusing on the effects of multilingual word study implemented in classrooms.
- One of 4 levels of *SPELL* was administered to each child based on his/her developmental spelling level. The resulting original database consisted of 1,125 words spelled by 141 children over the 3-year period.
- A n SSS-W score was calculated for each target word based on all spellings produced by children at each grade level. Trends were analyzed and words that yielded increasing SSS-W scores across three consecutive grade levels were identified.
- The reduced database consisted of 86 target words spelled by children in Grades 1-6. Because *SPELL* adapts based on ability level, not every word was spelled by every child.
- Spellings by grade level:

Grade 1: 507	Grade 2: 612	Grade 3: 954
Grade 4: 797	Grade 5: 819	Grade 6: 558

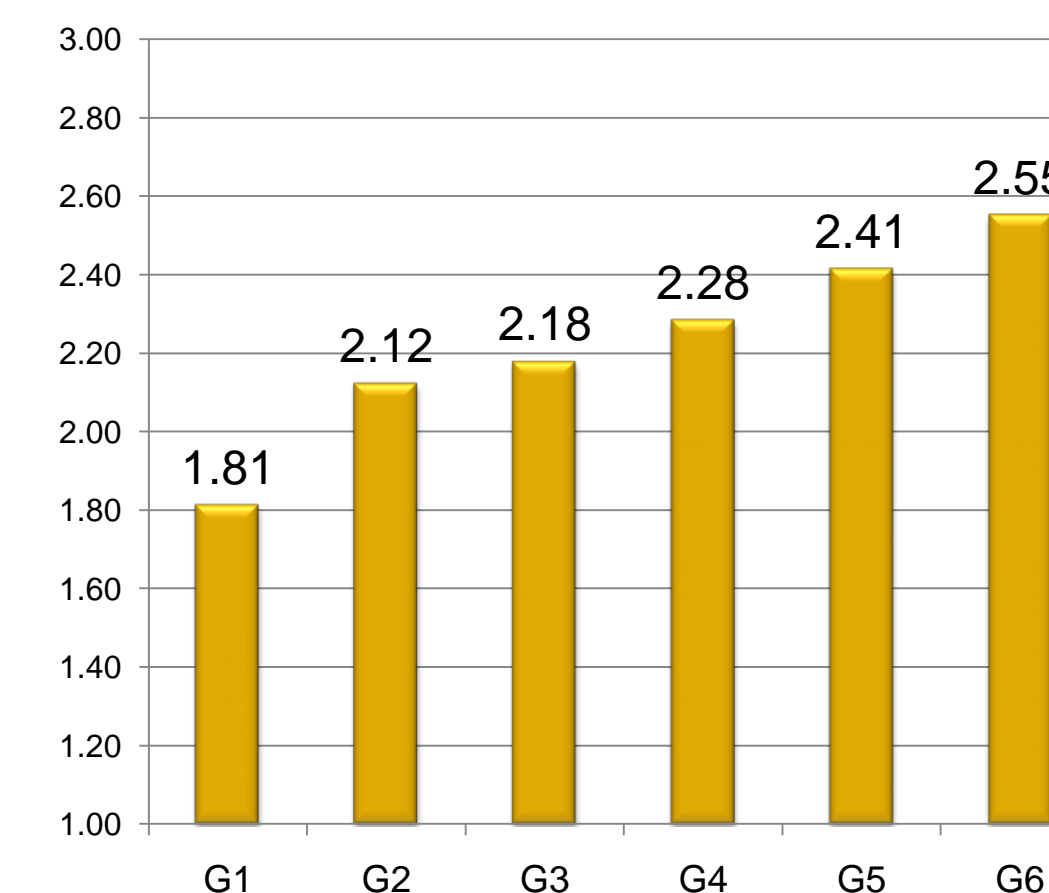
Simple SSS-Word Scoring

- Target word is parsed into graphophemic elements (phonemes, juncture, affix)
- Spelling is parsed and aligned with target elements
- Each word is given points based on degree of accuracy:
 - 3: All elements spelled correctly
 - 2: All elements spelled legally, though not correctly (e.g., rane for rain)
 - 1: All elements represented by a spelling, but at least one is spelled illegally (e.g., ran for rain).
 - 0: At least one element not represented by a spelling (e.g., rn for rain).

Results

- One-way ANOVA: significant effect for grade ($p < .00001$)
- Post Hoc Comparisons:

G6 = G5	G6 > G4, G3, G2, G1
G5 = G6, G4	G5 > G3, G2, G1
G4 = G5, G3	G2; G4 > G1
G3 = G4, G2	G3 > G1
G2 = G4, G3	G2 > G1



Conclusions/Limitations

- Both the Simple SSS-Word and the Weighted SSS-Word metrics yielded developmental differences.
- Simple SSS-Word scoring yielded some grade differences. Grades 5 and 6 achieved higher scores than Grades 1-3. Grade 1 scores were significantly lower than all other grades. However, differences among the middle grades were less apparent with this metric. Results were likely affected not only by differences in accuracy, but also differences in the linguistic complexity of the target words attempted by the students at the various grade levels.
- Weighted SSS-Word scoring yielded grade level differences that were more straightforward. With the exception of Grades 4 and 5, all grades were significantly different from each other.
- The weighting system used in this study was a simple sum, based on four linguistic characteristics, and all of the words were not attempted by all of the children.
- Additional data from children at all levels who attempt various types of target words are needed in order to determine optimal weighting parameters.

Weighted SSS Scoring

- *SPELL* adaptations resulted in some children spelling more linguistically complex words than others.
- Consequently, characteristics of target words attempted were documented and SSS scored weighted accordingly
- Weight based on number of syllables and morphemes, level of transparency between base and derived forms (1 to 4), and level semantic frequency (1-4) based on the word's Standard Frequency Index
- Lowest weight in word list was 4; highest weight was 12
- Possible values for SSS-W Weighted ranged from 0 to 36

Results

- One-way ANOVA: significant effect for grade ($p < .00001$)
- Post Hoc Comparisons:

G6 > G5, G4, G3, G2, G1
G5 & G4 > G3, G2, G1
G3 > G2, G1
G2 > G1

