DLLP Project Research Findings

For details of the project student sample cohorts, data collection procedures and linguistic analyses, see the DLLP Research Design & Approach pamphlet at DLLP.org.

Progressions of Oral Language and Discourse

For these analyses, we focused on the oral mathematics explanations of a subset of the corpus, across two time points (4-6 mos. interval) and between kindergarten and 3rd grade.

Research Questions:

1. What orders of emergence are observed for features of explanations of English learners (EL) compared with English only or proficient peers (EO/P)? And how do these progressions differ at the two grades and across two time points?

2. What relationship, if any, do progressions have with teachers’ concurrent ratings of student oral language abilities more generally?

- Language groups differed in order of emergence, and EO/P kindergartners’ usage of complex sentences (found in the developing phase of Sentence Sophistication) was more advanced than EL peers at T1. However, both language groups progressed on Relationships between Complex Ideas and Vocabulary Sophistication (beyond because and so to include connectives such as since; increased range of core vocabularies with words such as equals and plus).

- ELs and EO/Ps differed more in 3rd grade than in kindergarten at T1, with EO/Ps’ explanations placed higher than those of ELs for Vocabulary Sophistication, Stamina, and Expansion of Word Groups (repertoire of adverbs, adjectives, nominalizations, etc.). However, both groups showed little progress during 3rd grade, especially on Coherence/Cohesion and Stamina—discourse-level features perhaps challenging at early grades due to underlying cognitive and linguistic aspects: Coherence/Cohesion involves ordering explanations logically or temporally and using linguistic devices to tie referents; Stamina requires students to explain their mental models of the mathematics task.

- Kindergarten EO/P students’ use of Expanding Word Groups was positively correlated with teacher Speaking ratings. Third-grade EO/P students’ Control of Perspective-Taking (maintaining pronominal references to contribute to listener comprehension) was positively correlated with teacher Listening ratings. So few correlations suggest teachers may have a more generalized impression of student language abilities, one that is more favorable toward students’ abilities and one not necessarily commensurate with levels of specificity in the progressions; progressions force attention to language at different levels of organization: word, sentence, and discourse.

Interaction of Mathematics Content and the Progression of Oral Explanations

This study examined strategies students use to solve mathematical problems and how they might impact students’ competence in explaining mathematical reasoning in Kindergarten, 3rd and 5th grades.

Research Question:

1. How might the mathematical strategies that students adopt during tasks impact the language of their explanations?

- Explanations of less complex strategies (addition) contained fewer words, shorter sentences, less frequent general academic vocabulary and temporal discourse connectors, and fewer characteristics
Explanations produced by EO/P students were linguistically more sophisticated but not more cogent than those of EL students. There were differences in connections between strategies and explanations by grade but few by EL group status.

**Comparing Progressions of Oral and Written Language in Academic and Non-Academic Explanations**

This study examined differences between oral and written language in the academic (mathematics procedure) and non-academic (personal routine: teeth cleaning) explanations of 3rd and 5th graders.

**Research Questions:**
1. How do the language and discourse features of explanations differ by modality (oral vs. written)?
2. Are differences moderated by explanation task (academic vs. non-academic), grade level, or EL status?

Students had greater control of Sentence Sophistication and Coherence/Cohesion in their oral explanations than in their written explanations.

There was more of an effect of modality on Vocabulary Sophistication for non-academic explanations than for academic explanations; students were placed higher on the progression for oral explanations.

**Student Self-Assessment of Oral Mathematics Explanations with the DLLP**

In this study, a subset of 58 2nd, 3rd, 4th and 6th grade students used a “progression board” to complete a self-assessment of two language features in their explanations: Discourse Stamina or Vocabulary Sophistication.

**Research Questions:**
1. How do students’ self-assessments of their own oral explanations compare with researchers’ placement of their explanations on language learning progressions?
2. Does student-researcher concordance on the language learning progressions differ by key characteristics such as students’ grade level, gender, or target language feature?
3. What reflections do students have on the novel self-assessment approach?

Fifty percent of students self-assessed in accordance with researchers’ placement of their explanations.

Consistent with prior research, there was greater accordance between 6th graders’ and researchers’ placements of explanations, than for 4th and 2nd graders. However, even the youngest students could complete the self-assessment activity with scaffolding of the DLLP. Girls were more aligned with researchers’ placements. Additionally, agreement was highest for Stamina.

Over 90% of students found the activity to be a useful learning experience.

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**Sources:**


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