

Biemiller, A., & Slonim, N. (2001). Estimating root word vocabulary growth in normative and advantaged populations: Evidence for a common sequence of vocabulary acquisition. *Journal of Educational Psychology*, 93(3), 498-520.

Keywords: elementary school, instruction, vocabulary, root word

Summary: This study examined the process and implications for root word vocabulary attainment among two normative samples and one advantage sample between kindergarten and 6th grade. While the lowest quartile averaged gaining 3 root words per day between grades 3 and 5, compared to 2.3 for the highest quartile, the lowest quartile only reached a 4th grade level of root word attainment due to a small vocabulary pool by the 2nd grade. That is, the lowest quartile had greater gains; however, since students in the lowest quartile had a lower vocabulary allotment to begin with, they were unable to catch up to the highest quartile. Therefore, greater emphasis should be placed on vocabulary acquisition in the primary grades. Moreover, due to similar learning sequencing in vocabulary acquisition, a vocabulary curriculum sequence can be identified and implemented for elementary schools.

Assumptions:

- Children start and finish at different vocabulary levels rather than acquiring a common grade level vocabulary.
- If the rate of vocabulary acquisition were smaller than previously assumed, it would be feasible for teachers to include more new words in the classroom.
- If words are learned in the same order, then a curriculum can be developed to improve vocabulary acquisition.

Results:

- Percentages of words known were larger at the higher grades. However, the rate of word attainment peaked between grades one and two, and slowed thereafter.
- Normative sample gained words at a faster rate between grades 3-5 compared to the advantaged sample (2.9 words/day compared to 2.3 words/day, respectively). The reverse was true for 1 year olds through 2nd grade. In this case advantaged students acquired 2.4 words/day compared to the normative group at 2.2 words per day.
- A comparison of quartile groups across grades shows a large discrepancy in root word vocabulary by grade 2. The lowest quartile had 4100 fewer root words than the mean of the highest quartile and 3600 fewer root words than the advantaged sample.
- Individual words are learned in chiefly the same order from kindergarten through grade 5.

Conclusion:

- Achievement group, rather than grade level, is a stronger indicator of word knowledge.
- The spike in vocabulary for 2nd grade students may be due to research methodology choices, students' own reading, and/or cognitive-developmental

changes.

- Advantaged populations have a greater root word vocabulary by the end of grade 2 than their normative counterparts. This is possibly due to environmental factors and/or more exposure to word explanation.
- From grades 3 through 5 the normative population “catches up” on root word acquisition. However, the large gap between high and low quartiles remains constant between grades 2 and 5.
- There is a consistent sequence of word acquisition across populations and grades levels.

Suggestions for Teachers:

- Rates of vocabulary introduction should be increased before grade 2 to help overcome the gap between high and low quartiles.
- Research indicates there is an opportunity for further vocabulary acquisition in the middle grades.
- A vocabulary acquisition curriculum can be utilized as all students learn vocabulary in a similar sequence.

Suggestions for Literacy Leaders:

- Teachers need to introduce hundreds of new words to the low quartile group before grade 2.
- Students lagging in vocabulary may need reading materials that reflect this reality, particularly for independent reading.
- If differentiated readings are not available, children should be grouped according to their vocabulary acquisition level rather than age to allow for proper vocabulary instruction.