

Do Good Readers Acquire Words More Efficiently than Poor Readers?: A Comment on Joseph and Nation (2018)

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ABSTRACT

Joseph and Nation (2018) found that children who were “better comprehenders” acquired more words incidentally during reading than less-experienced readers. There were two possible confounds in their design that may have biased their results: (a) there was no control for the relative difficulty of the texts that their subjects read, and (b) their subjects’ exposure to the novel words was done in a way that may have favored those with better decoding skills.

Keywords: Good and poor readers; experienced readers.

Introduction

There is both experimental and correlational evidence that we acquire large parts of our vocabulary incidentally through reading (Nagy, Herman, & Anderson, 1985; Krashen, 1989). More frequent reading, especially pleasure or “free voluntary” reading, is associated with higher levels of vocabulary for both children and adults (Krashen, 2004). There is some disagreement, however, on whether readers differ in their *efficiency* in acquiring new words from texts. Stanovich (1986) claimed that good readers acquire words more efficiently than poor readers, resulting in what he termed a “Matthew’s Effect” in reading, where the gap between good readers and poor readers increases over time (the term comes from a line in the Gospel of St. Matthew, “the rich shall get richer, and the poor shall get poorer”).

In this comment, I argue that some of the evidence in support of Stanovich’s position has come from studies whose research

designs fail to control for potential confounds. I examine one such study by Joseph and Nation (2018), and show why their data do not indicate that there exists an efficiency “gap” between good and poor readers.

Joseph and Nation (2018)

Joseph and Nation (2018) examined the effects of “semantic diversity” and reading comprehension ability on incidental word acquisition. In their study, they asked two groups of middle-school students ($N = 40$) to read sentences containing six low-frequency past tense verbs unlikely to be known to the readers. Each verb was included in two conditions: “diverse” sentences (on different topics) and “non-diverse” sentences (on similar topics). The researchers presented the sentences to the children on a computer monitor in random order, and all six words appeared 10 times. To ensure the children were reading the sentences carefully, the researchers also included some filler

sentences that had yes/no comprehension questions after them.

After reading all of the experimental sentences assigned to their condition, the students took two paper-and-pencil vocabulary tests: (1) a yes/no plausibility test, where students had to determine if a sentence containing one of the target words made sense; and (2) a cloze test, on which students had to write in one of the six target words in a blank space (e.g., “The garden pond hadn’t been cleaned for months and pondweed had _____” for *accumulated* (p. 198)). Prior to the experiment, the subjects were also given the York Assessment of Reading for Comprehension (Snowling et al., 2009), a reading comprehension test.

Comprehension Ability and Incidental Word Acquisition

While the researchers did not find a significant impact for the “semantic diversity” of the sentences on word acquisition, they did report that reading comprehension ability was related to gains in vocabulary. Better readers acquired more words than poorer readers on both the plausibility ($z = 4.12$) and cloze measures ($z = 4.16$). Joseph and Nation concluded, therefore, that comprehension ability plays a “critical role” in novel word acquisition (p. 206).

We can interpret this claim in two ways. A weak version is that good readers are better at incidental word acquisition than poor readers because the texts they are given (both in school and in an experiment) are more likely to be comprehensible to them. Getting more “comprehensible input” is known to

lead to greater vocabulary growth (Krashen, 1985; 1989). If this version is correct, poorer readers given texts more appropriate for their level would be able to acquire words as efficiently as good readers.

The strong version of the claim is that good readers are better at word acquisition than poor readers even when text difficulty has been controlled for. This was Stanovich’s (1986) position, who stated that “better readers appear to learn new words from context with a greater efficiency than do less able readers *even when differences in the knowledge base are controlled*” (p. 382, emphasis added).

Confounding Variables in Measurement

There were two possible confounds in Joseph and Nation’s research design that prevent us from using their data to distinguish between weak and strong versions of their claim: (a) there was no control for relative text difficulty, and (b) the tasks and tests they gave their subjects may have led to an advantage for good readers unrelated to their efficiency at incidental word acquisition.

Relative Text Difficulty

Good readers know more words, have better command of complex syntactical structures, and usually know more about the world than less-experienced readers (Montag & MacDonald, 2015; Cunningham & Stanovich, 1991). Any text given to a group of readers with a wide range of abilities will likely be *relatively* more comprehensible to some readers than to others.

Joseph and Nation did not measure the relative difficulty of their sentences for their

groups of readers. A look at a few of the experimental sentences suggests that some might have been more comprehensible to better readers at this age level. Consider these four sentences (taken from the list of sentences provided in Joseph and Nation's Appendix A, with target words underlined):

- *Due to government cutbacks, the two regiments amalgamated with each other.*
- *Nuclear submarines are powered by amalgamated heat and water so they don't need to refuel.*
- *Lava had accumulated beneath the surface, which caused a spectacular eruption from the volcano.*
- *The U.K. has intervened in other countries' actions when there are human rights abuses.*

It is not difficult to imagine that some 10-year-olds would lack background knowledge and some of the non-target word vocabulary in these sentences to comprehend them fully, especially when they are presented in isolation. Since better readers are more likely to find them comprehensible, we would expect them to acquire the unknown words contained in them faster. The superior efficiency of good readers in word acquisition could simply be an artifact of relative text difficulty.

Some previous studies have failed to find a significant relationship between incidental vocabulary acquisition and reading comprehension ability (e.g., Konopak, 1988; Nagy, Herman, & Anderson, 1985; Nagy, Anderson, & Herman, 1987; Shu, Anderson,

& Zhang, 1995). Others have found such a relationship (Herman, Anderson, Pearson, & Nagy, 1987; Jenkins, Stein, & Wysocki, 1984). Relative difficulty was not closely controlled for in any of these studies, however.

Experimental Conditions and Test Characteristics

Joseph and Nation's subjects read individual sentences containing the unknown words on a computer screen. They were similarly given two measures that required reading and interpreting single, unrelated sentences on paper-and-pencil tests. Both their experimental condition and measurements were similar to certain "passage comprehension" tests, where students read a single sentence and either fill in a missing word (e.g., the Woodcock-Johnson passage comprehension test (Woodcock, McGrew, & Mather, 2001)), or answer questions about the sentence (e.g., Peabody Individual Achievement Test (Markwardt, 1989)).

Keenan, Betjemann, and Olson (2008) and Hua and Keenan (2017) found that the use of short texts (one or two sentences) for comprehension measures strongly favored better decoders, especially among younger readers. Since good readers are also typically better decoders, the good readers in Joseph and Nation's sample may have found the experimental sentences easier to comprehend than their less-proficient peers, resulting in their advantage in incidental word acquisition. Joseph and Nation collected data on decoding ability but did not use it in their analysis of the vocabulary test results. If their better readers were indeed also better decoders, then this alone may explain their

findings, even if the researchers had controlled for relative text difficulty.

Conclusion

Joseph and Nation's (2018) study provides us with some interesting new data on incidental word acquisition. It does not, however, provide decisive evidence that poor readers acquire words less efficiently than good readers, since it fails to control for the relative difficulty of the passage given to good and poor readers, and the possible confound of decoding ability.

Evidence for any "Matthew's Effect" in vocabulary growth should also avoid conflating the results from two different kinds of studies: inference experiments, in which subjects are asked to "puzzle out" or infer the meaning of the target words in a text; and "read-and-test" studies, in which subjects read a text for comprehension and are then given a surprise vocabulary test on the target words. Inference studies tap what Krashen calls *learning*, which is conscious knowledge of the language. Incidental read-and-test studies tend to measure *acquisition*, which is subconscious or unconscious knowledge (Krashen, 1981). Good readers do appear to be better at word inference than poor readers (e.g., Cain, Oakhill & Elbro, 2003). But data from inference studies cannot be used as evidence for incidental acquisition.

Notes

1. Nagy, Herman, and Anderson (1985) argued that Jenkins et al.'s use of "familiarization training" prior to their main experiment may have inadvertently encouraged their subjects to deliberately infer

word meanings. Jenkins et al.'s tasks may not have measured incidental word acquisition at all.

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