



# 2022 STAR Research Synthesis

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## Summary

STudent Achievement in Reading (STAR) is a 15-year initiative of the U.S. Department of Education, Office of Career, Technical, and Adult Education, designed to improve the reading achievement of intermediate-level adult learners, including grade-level equivalents (GLE) 4.0–8.9, National Reporting System (NRS) levels 3 and 4, adult basic education (ABE), or English as a second language (ESL).

Forty-three million adults demonstrate low proficiency in reading comprehension. According to the U.S. Department of Education, 54% of U.S. adults (ages 16–74 years) demonstrate low proficiency in literacy and read at the equivalent of a sixth-grade level. Limited skills in reading comprehension can present significant challenges for adults in their career path, health advocacy, economic success, and family life and could be costing the United States as much as \$2.2 trillion a year.<sup>1</sup> STAR partners with states, local programs, and instructors to provide: (1) training in evidence-based reading instruction (EBRI) and (2) technical assistance in developing the systems and procedures needed to implement, sustain, and expand EBRI in adult education programs.

The overarching goal of this synthesis is to update the STAR community on evidence-based reading research that may inform the STAR training or practitioners' instructional approaches. What follows is a thematic synthesis of a subset of the studies reviewed, highlighting findings and potential implications for STAR training, to prime practitioners who may be interested in learning more about the research areas explored in the articles. We focus our thematic synthesis on component reading skills and the validity of assessments used to capture adults' reading skills. Specifically, we have divided these themes into (1) vocabulary, (2) comprehension strategies, (3) comprehension

monitoring and prior knowledge, (4) applying the “Simple View” to adult learning, and (5) assessments.

### Research Approach

The researchers conducted a review to update the STAR community on evidence-based reading articles on adult literacy that have been published from 2020–present. A search was conducted using the terms “adult literacy” and/or “adult education” in conjunction with “reading” in the Academic Search Premier (EBSCO) database. In addition, the authors searched Google Scholar to identify pre-prints, abstracts, and dissertations/theses that may not be published yet. These searches yielded 17,280 papers, of which 20 were identified as relevant to STAR training or practitioners’ instructional practices. In reviewing the papers, researchers identified four themes: (1) Assessment and Measurement of Reading Skills (10 papers); (2) Teaching/Professional Development (4 papers); (3) Learner Engagement/Motivation (3 papers); and (4) Large-Scale Educational Survey Research (PIAAC studies; 3 papers).

### Thematic synthesis of reading components and assessments: Implications for practitioners

There is a preponderance of research focused on pre-K–12 literacy; comparatively, adult education research is more limited. To address this challenge, adult education researchers have begun to study what results or assessments from studying younger learners might apply to adult learners (with adaptations). By leveraging both the research and the learning programs built for K–12 to adult learners, adult education research can apply lessons and adapt appropriate components from K–12 learning programs to adult learners.

One theme of recent research looks at what we call reading component skills, including several that the STAR training focuses on. Reading component skills, such as decoding, vocabulary, and reading fluency, support reading comprehension ability but are themselves not direct measures of comprehension. There are a wide array of measures and assessments of reading component skills; however, one problem is that these may have been designed originally for younger learners. Therefore, researchers study whether these assessments are valid and useful when used with adults, or how one might use them but interpret the results differently. A set of studies were published in the past year that speak to this theme.

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### Vocabulary

One of the components targeted in the Adult Literacy Instruction Review of Research (Kruidenier et al., 2010) and National Reading Panel (2000) report is vocabulary. But what is vocabulary? How can we define it? One distinction in recent research literature is the difference between *breadth* and *depth* of vocabulary. Breadth is typically defined as how many words in the language one knows at least at a superficial level. Depth is more complicated but may include how a conceptual term (e.g., democracy) fits into a semantic network of associations or relationships; or words that have multiple meanings (bank as in place for money vs. side of a river); or nuances of meaning or connotations (e.g., cheap vs. miserly vs. thrifty). The Tran et al. (2020) study explored how breadth

and depth in adult learners interact with their comprehension. **This study suggests that both breadth and depth are crucial in supporting adults' comprehension skills. Practitioners interested in targeting and developing adult learners' vocabulary through instruction are encouraged to explore this literature.**

**Resource**

Tran, A. H., Tremblay, K. A., & Binder, K. S. (2020). The factor structure of vocabulary: An investigation of breadth and depth of adults with low literacy skills. *Journal of Psycholinguistic Research*, 49(2), 335–350.

### Comprehension Strategies

Reading comprehension requires more than knowing the words. It includes stringing together the meaning of longer written texts. A natural linguistic unit that constitutes a component of reading is the written sentence, that is, the cognitive processes that identify word meanings and then connect them into a meaning at a sentence level. Even at the sentence level, the processes for building up meaning require the temporary storage of words, phrases, or propositions (e.g., the black bear growls) and the control of the process (what is stored; what is safely dropped from memory; what other language processes, e.g., knowledge of syntax, pragmatics of situation, prior knowledge, are required to construct meaning). Ng et al. (2020) ran studies to explore these ideas, capturing word-by-word “eye-tracking” measures as adults read to infer what memory and strategic processes were being applied by lower- versus higher-skilled adult readers. **This study suggests multiple processes are needed for adult learners to comprehend texts. Practitioners interested in helping adult learners develop more efficient comprehension strategies, especially at the sentence level, and how this might relate to individual differences in memory and attention are encouraged to explore this literature.**

**Resource**

Ng, S., Payne, B. R., Liu, X., Anderson, C. J., Federmeier, K. D., & Stine-Morrow, E. A. L. (2020). Execution of lexical and conceptual processes in sentence comprehension among adult readers as a function of literacy skill. *Scientific Studies of Reading*, 24(4), 338–355.

### Comprehension Monitoring and Prior Knowledge

Two papers reviewed targeted reading components that often fall into the spaces between alphabets, vocabulary, fluency, and comprehension strategies but are no less important. A paper by Tighe et al. (2023) addressed comprehension monitoring, which is a meta-cognitive skill. In simpler terms, a reader needs to be checking as they go along that the meaning they are building up is making sense, and whenever they identify a problem (e.g., misread a phrase, come across an unknown word, or are unable to connect to the model of meaning), then the reader applies a set of strategies to check and evaluate what might have gone wrong. Tighe et al. asked adults to think aloud—that is, report what they were thinking after they had read—and looked at the adults' eye movements to better understand individual differences in their reading behaviors and strategies.

In another paper, Greenberg (2021) discussed the issues surrounding how background or prior knowledge interacts with reading comprehension. There is a rich literature exploring the nuances of this issue across younger readers and skilled adult readers. Essentially, it is easier to understand and perhaps learn from a written text if a reader already knows some of the information about the topic (which the reader then uses to update their prior knowledge when learning). If a reader knows practically nothing, then they may not be able to connect all the information to construct meaning, as most authors leave out some details because they expect their readers to bring in some of their own knowledge and experiences. Instructionally, activities that probe learners' prior knowledge of a reading topic (e.g., first reading aloud a headline or title and discussing before moving to reading the text) may help to activate or build up some knowledge prior to reading. This is generally accepted as a technique to assure positive experiences for understanding or learning from a topical text. **These studies suggest multiple processes are needed for adult learners to comprehend texts. Practitioners interested in targeting and developing adult learners' ability to integrate and build up their background knowledge when reading are encouraged to further explore this literature.**

#### Resources

Tighe, E. L., Kaldes, G., Talwar, A., Crossley, S. A., Greenberg, D., & Skalicky, S. (2023). Do struggling adult readers monitor their reading? Understanding the role of online and offline comprehension monitoring processes during reading. *Journal of Learning Disabilities, 56*(1), 25–42.

Greenberg, D. (2021). Background knowledge: The neglected component in adult literacy. *Journal of Adolescent and Adult Literacy, 64*(4), 460–463.

### Applying the “Simple View” to Adult Learning

Reading components never truly operate in isolation when one is reading. They interact as one reads a text (as one reads even a sentence, the reader applies alphabetic, vocabulary, fluency, and comprehension strategies). And, as a person's ability grows, the processes become more integrated, automatized, and strategically applied. Several studies in this cycle explored how reading components interrelate with each other in models of reading processes.

Talwar et al. (2021a) examined a framework that has been researched extensively for decades now in young readers and special populations (struggling readers, English language learners, and neurodiverse subpopulations) known as the “Simple View of Reading.” Essentially, it claims that reading can be decomposed into two major components: decoding or word identification and language or linguistic comprehension. There are many nuances in the literature concerning how one defines and assesses each of these two major components, but broadly most of the research accepts the general distinction.

Talwar et al. (2021b) examined a more complex version of the “Simple View” by considering adults at different performance levels and different outcome comprehension measures, using a complex statistical analysis technique, quantile regression, which can be used to show how the relationships of component skills might change across

varying comprehension levels. This study demonstrated how one needs to be sensitive to students' initial ability in order to determine which specific component measures are important and interacting with others, and thus which instructional techniques are most appropriate to target when and for whom.

Importantly, relative strengths or weaknesses in each component (and how they interact with diverse populations such as English language learners or adults with dyslexia or a learning difficulty) are likely to interact with the instructional approach and decisions one makes on a case-by-case basis. This is the topic of a paper by Talwar et al. (2020), which concerns not only the “Simple View” distinction of decoding versus language skills, but also higher- and lower-level competencies (another nuance related to this distinction). **These studies suggest that the “Simple View of Reading” can be applied to understanding the strengths and weaknesses of adult readers, which can provide valuable information on determining the best instruction to use with adult learners. Practitioners interested in targeting and developing adult learners’ integration of decoding, language, and reading comprehension skills, with a focus on how to differentiate instruction based on individuals’ profiles, are encouraged to further explore this literature.**

#### Resources

Talwar, A., Greenberg, D., Tighe, E. L., & Li, H. (2021a). Unpacking the simple view of reading for struggling adult readers. *Journal of Learning Disabilities, 54*(6), 438–451.

Talwar, A., Greenberg, D., Tighe, E. L., & Li, H. (2021b). Examining the reading-related competencies of struggling adult readers: Nuances across reading comprehension assessments and performance levels. *Reading and Writing, 34*, 1569–1592.

Talwar, A., Greenberg, D., & Li, H. (2020). Identifying profiles of struggling adult readers: Relative strengths and weaknesses in lower-level and higher-level competencies. *Reading and Writing, 33*, 2155–2171.

#### Assessments

A dissertation study published recently (Nightingale, 2020) directly examined assessments and the nature of how we assess adults, especially the difference between measures that include speed or rate of processing as part of the measurement versus those that are untimed. The study also compared oral to silent response tasks to see the impact of task design on performance. In general, measures that are untimed ask “at what level of proficiency can one perform a specific skill such as identifying to what level a student can decode or recognize words of increasing complexity?” or “what is the breadth of vocabulary knowledge with more difficult words typically being more rare or esoteric in usage?”

It is important to note that an assessment may not only test vocabulary or comprehension because these skills do not exist in isolation from each other. On a practical level, it is always worthwhile to query how a skill is tested and how that might interact with the way one builds up skills through instruction, as well as what might be expected of a skilled adult when applying reading comprehension in real-world applications. For some, untimed, silent reading performance is all that is required; for

others, rate of processing and oral language proficiency may be important or required (e.g., broadcast news reporter reading from a teleprompter).

Note that speed or rate of processing can be important too, as well as whether one performs equivalently on silent versus oral tasks. It is often important in skill development that an adult learner increases proficiency and efficiency in ease, speed, and minimal expenditure of attention in performing lower-level skills (e.g., word recognition and accessing word meaning) to conserve cognitive resources to apply to higher-level skill applications (constructing complex memory models of meaning from a text or book), referred to as automaticity in the psychology literature. Automaticity is a hallmark of skilled performance in many domains. **This study suggests that assessments need to be carefully considered to fully understand what skill(s) are being tested and how those skills interact with one another. Practitioners interested in learning more about the intention behind adult assessments and the implications from using assessment results are encouraged to further explore this literature.**

#### Resources

Nightingale, E. (2020). *An item-level and test-level analysis of struggling adult learners' performance on reading assessments* [Doctoral dissertation, Georgia State University]. ScholarWorks @ Georgia State University.  
[https://scholarworks.gsu.edu/cgi/viewcontent.cgi?article=1014&context=ltd\\_diss](https://scholarworks.gsu.edu/cgi/viewcontent.cgi?article=1014&context=ltd_diss)

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<sup>i</sup> U.S. Department of Education, National Center for Educational Statistics, Statistics Canada and Organization for Economic Cooperation and Development (OECD), International Adult Literacy Survey (IALS), 1994–98. (2021).