

2018 STAR Research Review

Student Achievement in Reading (STAR) is a reform initiative that focuses on improving the reading of intermediate level adult basic education students. STAR works with states, local programs and teachers to provide:

- training in evidence-based reading instruction.
- technical assistance in developing the systems and procedures needed to implement and sustain evidence-based reading instruction.

The purpose of the STAR research review conducted annually is to identify any developments in reading research that call for changes in project content. In addition, the results of the review are used to keep the STAR team up-to-date on any new research related to the training and technical assistance they are providing.

Two sources were used to select the articles for the 2018 review of research:

1. The term “adult literacy” was used as a search term in the Academic Search Premier (EBSCO) database to locate articles published between January 2017 – March 2018.
2. Announcements of new research in literacy development and professional development were reviewed.

Articles from either source were excluded if they were:

- Essays, book reviews, or narratives describing personal experiences.
- Research conducted in languages other than English.
- Research with a primary focus other than reading.
- Studies not related to STAR’s rationale and/or design.

Barnes, A.E., Kim, Y-S., Tighe, E.L., & Vorstius, C. (2017). Readers in adult basic education: Component skills, eye movements, and fluency. *Journal of Learning Disabilities, 50, 180-194.*

Accuracy, rate, and eye movements during oral reading were recorded in a diverse sample of 48 mostly native English speaking adults with *Test of Adult Basic Education* (TABE) scores averaging about the 6th grade level. The passages used were at the 3rd-5th grade reading level. Compared to what prior research has found with skilled adult readers, the eye movements of these participants were characterized by slightly longer fixations, shorter saccades, and a higher rate of rereading. Reading fluency (as estimated by words correct per minute) was correlated with reading comprehension (as measured by the TABE and *Woodcock-Johnson III* (WJ-III) passage comprehension) and the less fluent readers’ eye movements were more affected by low frequency words than were those of the more fluent readers. The authors recommend that “...education for adults with low literacy skills should provide for explicit instruction in decoding strategies and reading fluency along with comprehension instruction” (pg. 191).

Darling-Hammond, L., Hyster, M.E., & Garner, M. (2017). *Effective teacher professional development*. Retrieved March 8, 2018, from <https://learningpolicyinstitute.org/product/teacher-prof-dev>. Palo Alto, CA: Learning Policy Institute.

The results of 35 studies examining connections among professional development, teaching practices, and student outcomes were reviewed. Seven features of effective professional development were identified:

- Focusing on a specific curriculum content (e.g., literacy, math, science)
- Providing opportunities to design and try out what is being recommended
- Supporting collaboration among participants
- Providing models and modeling of effective practice (e.g., videos, lesson plans)
- Providing coaching and expert support
- Providing opportunities to reflect and ask for feedback
- Including adequate time to learn, practice, and reflect

Also discussed in the report are barriers that can cause even the best-designed professional development to fail to produce the desired outcomes, such as:

- Inadequate resources, including necessary curriculum materials

- Lack of a shared vision
- Lack of time for implementation
- Failure to align state and local policies
- Dysfunctional school cultures
- Inability to track and assess the quality of PD

Gray, S.H., Ehri, L.C., & Locke, J.L. (2018). Morpho-phonemic analysis boosts word reading for adult struggling readers. *Reading and Writing, 31*, 75-98.

Low frequency morphologically complex academic words (e.g., inalienable) were taught to adults reading at about the 6th grade level in one of two ways: via morpho-phonemic analysis or whole word study. Each method consisted of the same number of steps, but with differing content:

Step	Morpho-phonemic analysis	Whole word study
1	Read aloud definition	Read aloud definition
2	Read aloud and write synonym	Read aloud 2 sentences containing word
3	Read aloud sentence containing word	Read aloud and write synonym
4	Read aloud and write word origin and meaning	Identify and write part of speech
5	Read aloud and write affixes and roots	Identify and write words associated with meaning
6	Identify suffix's role (in determining part of speech)	Read/write the word
7	Read and write related words with the same root	Count the number of letters in word
8	Segment word into syllables	Spell/visualize/write word
9	Identify syllable with greatest stress	Describe what makes the word hard to spell

Instruction was delivered individually over 4 weeks, in 2-hour sessions, with 10 words taught per week. Participants were a mix of monolingual African Americans and bilingual Spanish speakers. Both types of instruction resulted in large gains in the ability to read, spell, match definitions, and complete fill-in sentences with the taught words, with no differences between the groups. However, the morpho-phonemic analysis group made better gains on a root word recognition test than did the whole word study group. The morpho-phonemic group also made significantly better gains on the WJ-III letter-word ID and word attack subtests than the whole word group did. No gains in vocabulary, comprehension, and spelling standardized test scores occurred for either group.

Greenberg, D., Ginsburg, L., & Wrigley, H.S. (2017). Research updates: Reading, numeracy, and language education. *New Directions for Adult and Continuing Education, 155*, 83-94.

Following a brief overview of research conducted over the past decade demonstrating adult readers' lack of skill in phonological awareness, fluency, vocabulary, background knowledge, inferencing and memory, the authors identify the following as areas needing more research: digital literacy and sociocultural aspects of adult reading. With regard to numeracy, the research reviewed highlights a disconnect between school math and real-life numeracy practices, over-emphases on computation at the expense of conceptual understanding, and the positive contribution that working collaboratively in small groups can have on the development of mathematical understanding. Few studies in adult English acquisition were found that show what practices are effective in helping English learners become economically and socially integrated. However, recognized as important are: building content knowledge, taking advantage of past experiences and literacy in a first language, and accounting for the affective and sociocultural dimensions of language. Recent research has also revealed the barriers faced by college-educated immigrants with limited English skills.

Lupo, S.M., Strong, J.Z., Lewis, W., Walpole, S., & McKenna, M.C. (2018). Building background knowledge through reading: Rethinking text sets. *Journal of Adolescent & Adult Literacy, 61*, 433-444.

A framework for using text sets that meets disciplinary goals, builds background knowledge, and increases volume of reading is presented. The framework uses 4 texts: “one that is a challenging on- or above-grade-level text (the target text) and three other texts that build the background knowledge and motivation needed to comprehend the target text” (pg. 436). Supporting texts include (1) a visual or video text to activate background knowledge, (2) an informational text that builds additional knowledge, and (3) an “accessible text” that garners buy-in. The article provides several examples of “quad text sets” in different content areas, along with recommendations for ordering the texts and relevant comprehension strategies.

McHardy, J., Wildy, H., & Chapman, E. (2018). How less-skilled adult readers experience word-reading. *Australian Journal of Language and Literacy*, 41, 21-29.

A group of 36 adults with difficulties in decoding were asked about what they were thinking and the strategies they used when they were asked to read words. Four groups were identified: (1) locked out readers, those who are unable to make sense of the task and what others tell about how to read a word; (2) anxious readers, those who lack confidence in what they know and prefer to avoid unknown words; (3) wandering readers, those who have confidence but who make errors by guessing; and (4) persistent readers, those who keep at it, despite progress that can be slow and stressful. The authors’ recommendations include: “To build reading skill where reading difficulties persist, instruction must be informed by diagnostic assessment...Effective instruction requires identification of what each learner knows and what skills are yet to be mastered...Without careful assessment to provide information about aspects of learner difficulties, teaching may not be useful...” (pg. 27).

McKoon, G., & Ratcliff, R. (2017). Adults with poor reading skills and the inferences they make during reading. *Scientific Studies of Reading*, 21, 292-309.

Predictive inferences are ones that readers make about what will happen next in an episode or story. These kinds of inferences are also ones that skilled readers make quickly and automatically during reading. In this study, the predictive inferencing ability of a group of adult literacy learners (mean grade level score on the TABE = 6.6) was compared with that of college undergraduates. Although the less-skilled readers were slower and less accurate than the skilled readers, taking speed/accuracy tradeoffs into account showed that the degree to which adult literacy learners make predictive inferences did not differ significantly from college students.

Miller, C.D., Greenberg, D., Hendrick, R.C., & Nanda, A. (2017). Educational attainment: Limited implications for adult literacy learners. *Journal of Research and Practice for Adult Literacy, Secondary, and Basic Education*, 6, 21-36.

A group of native English speaking adult literacy learners who had graduated from high school was compared with a similar group who had dropped out prior to attending high school. Both groups were reading words at the 3rd-5th grade level, and the majority of participants in both groups were female and African American. High school completers were found to be more likely to be currently employed, registered to vote, and to use and get information from the internet. Non-completers scored significantly better on a reading fluency test. No differences between the groups were found on tests of vocabulary, reading aloud non-words, reading comprehension, spelling, reading pleasure, self-perception of reading ability, and print reading practices. The findings call into question the validity of using level of educational attainment alone as an indicator of literacy behaviors, beliefs, and outcomes.

Muth, B., Sturtevant, E., & Pannozzo, G. (2017). Performance and beliefs: Two assessments of literacy learners in prison, Part I. *The Journal of Correctional Education*, 68(1), 71-96.

Eleven diagnostic reading tests were administered to 120 federal prisoners to investigate their reading profiles. Participants were selected to represent beginning level learners (38%), intermediates (30%), and advanced (32%). The majority were male (88%), African American (71%), and native English speakers (85%). Factor analysis (a statistical method used to identify commonalities among the various test scores) revealed four factors: **print** (with tests of phonemic awareness, word attack, and recognition of words in and out of context loading on this factor); **meaning** (with tests of oral expressive and receptive vocabulary loading on this factor); **naming speed/rate** (with letter naming speed and oral reading rate loading on this

factor); and **memory** (with tests of verbal short-term and working memory loading on this factor). The comprehension test results split evenly between the **print** and **meaning** factors. Three distinct patterns emerged among the four factors:

- A flat profile, which fit 59% of the total sample, where scores on the tests making up the **print** and **meaning** factors were about the same. This profile included learners who scored the lowest overall, as well as those who scored the highest. The majority with this profile were learners at the intermediate level, however (38% of the total sample)
- A profile where scores on tests making up the **meaning** factor were higher than scores on the tests making up the **print** factor. Learners with this profile (22% of the total sample) reported experiencing reading difficulties as early as elementary school. Most with this profile were at the beginning level (17% of the total sample)
- A profile where scores on tests making up the **meaning** factor were lower than scores on the tests making up the **print** factor. Learners with this profile (24% of the total sample) were all at the intermediate level. The majority of the non-native English speakers in the sample (63%) also had this profile

While agreeing that their results support the use of diagnostic testing as a way to improve reading instruction, the authors also urge that test results be contextualized “within more holistic understandings of learners provided by the prisoners themselves” (pg. 90). See Part II (below).

Muth, B., Sturtevant, E., & Pannozzo, G. (2017). Performance and beliefs: Two assessments of literacy learners in prison, Part II. *The Journal of Correctional Education*, 68(2), 62-81.

Six of the participants from Part I were recruited for individual, open-ended interviews about their beliefs about learning and literacy. Two of the participants were reading at the beginning level, three at the intermediate, and one at the advanced. Five were male, three African American, three Caucasian. One was a non-native speaker of English. One theme emerging from the interviews concerned the prisoners' beliefs about their inner resources for learning, such as perseverance, self-control, maturity, and independence. Support of other prisoners was also noted as a possible resource. Beliefs about barriers to learning included embarrassment and unsafe classrooms. The interviews also revealed how personal literacy practices (like letter writing) can be devalued by a prisoner because they are not part of their literacy program. From these results the authors argue “If prison teachers only view learners as quantified profiles of academic needs and strengths, the risk of alienation is great...Bifurcated methods such as those used here can serve as checks against elitist instruction (overly focused on the norms) and feel-good, self-indulgent instruction (overly focused on the personal).” (pg. 78).

Rasinski, T.V., Chang, S-C, Edmondson, E., Nageldinger, J., Nigh, J., Remark, L., Kenney, K.S., Walsh-Moorman, E., Yildirim, K. Nichols, W.D., Paige, D.D., & Rupley, W.H. Reading fluency and college readiness. *Journal of Adolescent & Adult Literacy*, 60, 453-460.

A sample of 81 incoming college freshmen education majors volunteered to be assessed (80 were female) reading aloud a 443-word excerpt from “The Legend of Sleepy Hollow” (Dale-Chall readability score of 8.5). Word recognition accuracy and rate were recorded. Participants were asked to read orally in their normal reading voice, and following the reading, participants were asked a literal-level question (to assure they were reading for meaning, not speed). Word recognition accuracy was high (ranging between 96-98%) and average reading rate was about 150 words correct per minute (WCPM). The authors note that this rate is about the same as what is expected in 8th grade, suggesting to them that “once students achieve a certain level of automaticity (say, 150-160 WCPM on grade-level materials), further increases in automaticity as measured by oral reading rate should not be a priority” (pg. 458). WCPM was also found to be moderately correlated with ACT reading subtest scores ($r=.52$), with the following rates associated with various scores:

ACT reading subtest score	WCPM
19	101
20	112
21	123
22	134

Steen-Baker, A.A., Ng, S., Payne, B.R., Anderson, C.J., Federmeier, K.D., & Stine-Morrow, E.A.L. The effect of context on processing words during sentence reading among adults varying in age and literacy skill. *Psychology and Aging*, 32, 460-472.

The eye movements and comprehension of a sample of 80 adults of different ages and reading ability were monitored while they read sentences in which the final word differed in contextual constraint and expectancy. For example, in the sentence “As soon as they reached the sand, he stopped to take off his ___”, the word *shoes* is strongly constrained and expected, while the word *watch*, although plausible, is unexpected. In the sentence “They had to shampoo the new rug after the accident with the ___”, the word *wine* is weakly constrained but expected, while the *table* is both weakly constrained and unexpected. Adults with word recognition scores below the 8th grade level read the sentences more slowly than adults with higher reading ability. But, the effect of context on eye movements did not differ as a function of reading skill. In addition, lower skill adults did not seem to be aided by context in their recognition of the target words. However, they did show slightly lower comprehension of the weakly constrained or unexpected sentences.

Trawick, A.R. (2017). *Using the PIACC Literacy Framework to guide instruction: An introduction for adult educators*. Retrieved March 8, 2018, from <https://lincs.ed.gov/professional-development/resource-collections/profile-1025>. Washington, DC: American Institutes for Research.

PIACC, the Programme for the International Assessment of Adult Competencies is a cyclical, international assessment of the skill levels of adults. In this guide, the key elements of the framework PIACC uses to assess literacy, based on contexts (e.g., work, personal, societal, educational), contents (e.g., prose, document, digital) and strategies required (e.g., access and identify; integrate and interpret) are discussed in terms of their relevance for adult literacy instruction. Factors affecting text difficulty are also described.