

A Summary of Scientifically Based Research Principles

Teaching Adults to Read

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This Partnership for Reading publication describes strategies proven to work by the most rigorous scientific research available on the teaching of reading. The research that confirmed the effectiveness of these strategies used systematic, empirical methods drawn from observation or experiment; involved rigorous data analyses to test its hypotheses and justify its conclusions; produced valid data across multiple evaluators and observations; and was accepted by a peer-reviewed journal or approved by a panel of independent experts. The application of these research-based strategies will increase the likelihood of success in reading instruction. Adherence to scientifically based research in this publication was ensured by a review process that included representatives of each Partnership for Reading organization and external expert reviewers. For detailed information on this review process, contact the Partnership for Reading at the National Institute for Literacy, 1775 I Street NW, Suite 730, Washington, DC 20006.

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Introduction

Teaching reading is a complex undertaking, especially when the learner is an adult. Unlike children, adult learners cannot spend several hours in a classroom every day. Most adults learning to read find it difficult to attend classes at all; those who enroll in a basic education program can spend, at most, a few hours a week working on their reading.

When adult students arrive in the classroom, they can be at just about any level in their reading development, from beginning readers working on the fundamentals to more advanced readers ready to begin study for a high school level equivalency diploma.

Emotional factors such as motivation, engagement, and fear of failure play a major role in reading success. These feelings can be especially intense for adults, particularly for learners who have spent years struggling with reading and hiding their inability to read from family members, friends, coworkers, and employers.

Given the complexity of the task, what methods should educators use to help adult learners make substantial gains in their reading skills?

This booklet summarizes the emerging principles and trends in adult reading instruction identified in a report of the **Reading Research Working Group: Research-Based Principles for Adult Basic Education Reading Instruction**. This group of adult education and reading experts was established by the National Institute for Literacy and co-sponsored by the National Center for the Study of Adult Learning and Literacy. Its purpose was to identify research-based principles for adult reading instruction.

We know a lot about how to teach children to read, including children who find it difficult to master reading. The reports of the National Reading Panel (*Teaching Children to Read*) and the National Research Council (*Preventing Reading Difficulties in Young Children*) describe strategies that work, according to the findings of extensive, high quality, and rigorous research. We know much less about effective strategies for teaching adults to read. The National Reading Panel (NRP), using an exacting screening process, found more than 400 studies to review. By comparison, the Reading Research Working Group found only about 70 studies on adult reading instruction and assessment that met the criteria for quality research. This was true even when the research criteria developed by the NRP were expanded to include more descriptive studies of reading instruction.

How page references are used in this booklet

Example 1: "When alphabets is a part of adult beginning reading instruction, increases in reading achievement are found (43)."

The number inside parentheses at the end of this statement refers to a page in **Research-Based Principles for Adult Basic Education Reading Instruction**, and indicates that the statement is based on existing research with adult learners. In this example, information about the research that supports the statement can be found on page 43 of **Research-Based Principles**.

Example 2: "For word analysis, effective strategies systematically teach letter-sound correspondences directly and explicitly. They focus on teaching learners how to convert individual graphemes (letters and letter combinations) into phonemes and then blend them together to form a word. Or, they focus on converting larger letter combinations such as common spelling patterns (e.g., ing, able, un) (NRP, 2-92, 2-93; RBP, 51)."

The abbreviations and numbers inside the parentheses at the end of this statement refer to chapter and page references in the National Reading Panel report and to page references in **Research-Based Principles for Adult Basic Education Reading**

Instruction, and indicate that the statement is based on findings from research with children and then extended for their implications for teaching reading to adults. In this example, the statement comes from pages 92 and 93 in Chapter Two of the NRP report, and is extended on page 51 of **Research-Based Principles for Adult Basic Reading Instruction**.

Reading is a complex process where all components may be active at the same time. Instruction, therefore, should address each major aspect of reading. Also, reading develops gradually over time and a reader's mastery of different components may develop at different rates. Assessing each component provides a complete picture of an adult's reading ability. The need to assess and teach all the components has important implications for teachers. These are presented in the final chapter, ***Putting It All Together***.

Another intent of this summary is to encourage teachers to consult reading instruction research. Whenever a research-based reading principle is presented, it is accompanied by a page reference to **Research-Based Principles for Adult Basic Education Reading Instruction**. Teachers interested in specific research studies may find brief descriptions of the research, and citations for complete articles, in that book. Ideas from the K-12 research are accompanied by page references to the National Reading Panel report as well as to **Research-Based Principles**, which states the ideas in the context of adult reading instruction research.

Today, researchers are working diligently to expand the base of scientific research in adult reading instruction. Several promising studies sponsored by the National Institute of Child Health and Human Development, the National Institute for Literacy, and the U.S. Department of Education are examining methods specifically for teaching reading to adults. Results from these studies, however, may not be available for several years. If adult educators want to use the best practices that the research has to offer, what can they do as they wait for a critical mass of adult reading research results to accumulate? Where should teachers in community-based programs, community colleges, and family literacy programs turn for suggestions on teaching adults to read when the research has not yet fully addressed the field's important topics?

The Reading Research Working Group (RRWG) took the following approach to these questions:

- It looked at the adult reading instruction research;
- It identified advice for practice (principles) from the best of this research; and
- It supplemented these findings with those from the National Reading Panel report.

Supplementary results from the NRP were selected carefully, using criteria that take into account important differences between readers in different age groups. The RRWG called the suggestions for adult reading assessment and instruction *emerging principles* and *trends* because the small number of available research studies made it impossible to derive many truly robust principles. With a few exceptions, the studies used to derive the emerging principles and trends were published in peer-reviewed journals. Of these studies, the greatest weight was given to those that compared adults in different treatment groups. Other more descriptive studies were used as supporting evidence.

This summary presents the results of the Reading Research Working Group's review of adult reading instruction research. Each of the first four sections addresses one essential component of reading instruction: alphabets, fluency, vocabulary, and comprehension. The same questions are raised for each:

- What is the component?
- Why teach it?
- How do you assess it?

In addition, for each topic, we briefly describe the implications for teachers. This booklet was not intended to offer extensive examples of how the research can be translated into practice. We encourage readers to consult other resources offered by the Partnership for Reading for examples of scientifically based instructional strategies for adult literacy (visit www.nifl.gov/partnershipforreading).

Alphabets

What is alphabetic?

English is an alphabetic language. The letters in its alphabet represent the sounds of spoken English. The process of using the written letters in an alphabet to represent meaningful spoken words is called alphabetic, and includes both phonemic awareness and word analysis. Phonemic awareness is the knowledge of the basic sounds (phonemes) of spoken language. Word analysis is the knowledge of the connection between written letters or letter combinations and the sounds they represent.

Why teach alphabetic?

Phonemic awareness and word analysis help learners become familiar with how the English writing system works—a crucial step in learning to read. Students with good phonemic awareness know how to manipulate the individual sounds (phonemes) of spoken English. They know, for example, that the spoken word *cat* is made up of three sounds: /c/-/a/-/t/. (Note that letters appearing between slashes should be read as sounds—for example, /b/ is read as the first sound in *bob*—not as *bee*.)

Students with good word analysis know how individual letters and combinations of letters represent the sounds of spoken English. They know, for example, that the string of written letters *c*, *a*, and *t* represent the spoken word *cat*. They know how to blend sounds together to form regularly spelled words and how to recognize irregularly spelled words by sight. As readers advance beyond the very beginning levels, more complex aspects of word analysis, such as the knowledge of word parts (for example, prefixes, suffixes, stems, and compounds) and the use of tools such as the dictionary, may contribute to word reading ability.

Adult non-readers have virtually no awareness of phonemes (39), and adult beginning readers have difficulty manipulating phonemes (39). They also have difficulty applying letter-sound knowledge in order to figure out new or unfamiliar words while reading (40). When adult beginning reading instruction includes alphabetic, increases in reading achievement occur (43).

How do you assess alphabetic?

Phonemic awareness is assessed *orally* through tasks that ask learners to demonstrate their ability to manipulate the sounds in spoken words. The National Reading Panel (NRP, 2000, p. 2-10) provides the following summary of these kinds of tasks.

- **Phoneme isolation:** recognizing individual sounds in words, for example, "Tell me the first sound in *paste*." (/p/)
- **Phoneme identity:** recognizing the common sound in different words, for example, "Tell me the sound that is the same in *bike*, *boy*, and *bell*." (/b/)
- **Phoneme categorization:** recognizing the odd sounding word in a sequence of three or four words, for example, "Which word does not belong? *bus*, *bun*, *rug*." (*rug*)
- **Phoneme blending:** listening to a sequence of separately spoken sounds and combining them to form a recognizable word. For example, "What word is /s/ /k/ /u/ /l/?" (*school*)
- **Phoneme segmentation:** breaking a word into its sounds by tapping out or counting the sounds, or by pronouncing and positioning a marker for each sound, for example, "How many sounds are there in *ship*?" (three: /sh/ /i/ /p/)
- **Phoneme deletion:** recognizing what word remains when a specified phoneme is removed, for example, "What is smile without the /s/?" (*mile*)

Word analysis is assessed through tasks that ask students to demonstrate their ability to say the sounds in *written* words or parts of words. Letters or letter combinations that represent a basic sound, or phoneme, are called *graphemes*. Students can be asked to pronounce single-letter graphemes, two-letter graphemes or digraphs, or larger word parts such as blends. Sample tasks would be:

- "What sounds do these letters make: *b*, *d*, *f*?"
- "What is the short vowel sound made by these letters: *a*, *e*, *i*?"
- "What sounds do these letters make: *ch*, *ck*, *oa*, *ee*?"
- "What sounds do these letters make: *br*, *st*, *str*, *at*, *am*?"

The ability to pronounce word parts can also be assessed with whole word tasks. To find out if someone can decode the short *a* vowel sound, for example, we might ask him or her to read the word *can*. Any response with a short *a* sound in the middle position would be correct (*can, cat, or ban*) because it contains the short *a* target phoneme.

Alphabetics: implications for teachers

Alphabetics can be improved by participation in adult education (42, 43), and explicit instruction may be the best way to accomplish this (45). Explicit instruction consists of direct teaching of letter-sound relationships in a clearly defined sequence.

The NRP's review of K-12 alphabetics instruction suggests that phonemic awareness and word analysis should be taught together. Phonemic awareness instruction is most effective when letters, not just sounds, are used for instruction. Research at the K-12 level also suggests that the most effective strategies for teaching phonemic awareness focus on a few specific skills, especially blending (putting individual phonemes or sounds together to form words) and segmenting (breaking a word into its individual phonemes) (NRP, 2-4, 2-5; RBP, 50).

Effective word analysis strategies systematically teach letter-sound correspondences directly and explicitly. They focus on teaching learners how to convert individual graphemes (letters and letter combinations) into phonemes (sounds) and then blend them together to form a word. Or, they focus on converting larger letter combinations such as common spelling patterns into sounds (e.g., ing, able, un) (NRP, 2-92, 2-93; RBP, 51).

Fluency

What is fluency?

Fluency is the ability to read with efficiency and ease. Fluent readers can read quickly and accurately and with appropriate rhythm, intonation, and expression. Individuals who are learning to read often are not fluent. Their reading is choppy and filled with hesitations. They make false starts and mistakes in pronunciation. But even mature readers may read less fluently if they try to read texts that contain many unfamiliar words. Their reading may slow down and be characterized by more hesitations and mispronunciations than usual.

Why teach fluency?

Without fluency, readers attend more to decoding than to understanding the meaning of what they are reading. Fluency promotes comprehension by freeing cognitive resources for interpretation. Fluent reading also signals that readers are pausing at appropriate points to make sense of the text. When a reader can reproduce the rhythm intended by the author, he or she can grasp the meaning more easily.

Fluency is an issue for adult beginning readers, intermediate readers, and for some who read at more advanced Adult Basic Education levels. In a large-scale assessment of over one thousand young adults, those with poor fluency had a silent reading rate of about 145 or fewer words per minute—almost 100 words per minute slower than the fluent readers (57). The oral reading rate and accuracy of adult beginning readers closely resembles those of children who are beginning to read (57).

How do you assess fluency?

Reading fluency can be measured formally with standardized tests, or informally with reading inventories, miscue analyses, pausing indices, or measures of rate. Typically, a student reads aloud while the teacher observes and records reading accuracy and reading rate. Reading accuracy is the number or percentage of words read correctly in a text. Reading rate or speed is the number of words read in a given amount of time, such as the number of words read in a minute, or the average number of words read per minute.

Sometimes measures of oral reading accuracy and rate are combined, as in determining the average number of words read correctly in a minute. Fluency can also be estimated by timing how long it takes to read a passage of text silently.

Another way to assess fluency is by the rhythm a reader has while reading. As part of a study conducted by The National Assessment of Educational Progress, researchers developed a four-point fluency scale based on pauses. Level one on the scale represents readers who read word by word, while level four represents those who pause only at the boundaries of meaningful phrases and clauses.

Fluency: implications for teachers

Repeated reading is the most effective instructional technique for increasing reading fluency in adults (58-61). In repeated reading, a student reads a passage many times while a teacher provides feedback about rate and accuracy levels, helps with difficult words, and models fluent reading.

Vocabulary

Vocabulary: noun

1. All the words of a language. 2. The sum of words used by, understood by, or at the command of a particular person or group. 3. A list of words and often phrases, usually arranged alphabetically and defined or translated; a lexicon or glossary. Adapted and reproduced by permission from *The American Heritage Dictionary of the English Language, Fourth Edition*. © 2000 by Houghton Mifflin Company.

What is vocabulary?

A person's vocabulary consists of the individual words whose meanings he or she knows and understands. Reading vocabulary comprises those words that we know and understand as we read. Because reading involves decoding, we can know the meaning of a word when we hear it spoken but still not be able to read it in print. This is common for beginning readers, whose oral vocabulary ♦ that is, their speaking and listening vocabulary ♦ is often larger than their reading vocabulary.

The depth of a person's knowledge of individual words can also vary. We may have a deep understanding for words we use frequently, knowing many or even all of their dictionary definitions, for example. Or our knowledge may be shallow, as it is when we know only one of several meanings for a word, or when we have heard a word only a few times but have never used it ourselves or checked on its definition.

Why teach vocabulary?

As one of several components of reading, vocabulary instruction may be best viewed as necessary, but not sufficient. Teaching the meanings of individual words will not ensure that learners can decode fluently or read passages of text with understanding. But vocabulary knowledge and skills are crucial for getting meaning from text. Without knowledge of the meanings of the key concepts in a text, a reader will struggle to understand the writer's intended message.

How do you assess vocabulary?

Vocabulary knowledge can be assessed in many ways, each of which may influence an instructor's view of a student's vocabulary ability. The structure of a test determines the type of vocabulary knowledge being measured, such as receptive vocabulary (listening and reading) or expressive vocabulary (speaking and writing). The nature of the test also determines how much knowledge a reader needs about an individual word (vocabulary depth) to respond correctly to assessment tasks.

For example, some tasks ask the learner to respond with oral answers: "Tell me what the word *travel* means." Responses scored as correct could require very little knowledge (*to go on vacation*) or more depth of knowledge (*to move from one place to another*). Another more common task is the written, multiple-choice question. Multiple-choice items can also be structured to require more, or less, depth of knowledge.

A written multiple-choice question ♦ like other tasks that require students to read a test item ♦ can measure abilities other than a learner's vocabulary knowledge, such as alphabetic or fluency. For instance, if a learner cannot decode the words in a vocabulary test item, he may not be able to respond correctly even if he knows the word when hearing it. For this reason, oral

vocabulary tests may be more accurate measures of learners' general knowledge of word meanings because they do not require decoding.

Very little research exists on the assessment of adult basic education (ABE) students' vocabulary knowledge. One study does suggest that teachers should give special attention to ABE learners' vocabulary assessment. This research compared the oral vocabulary knowledge of children and adults who had word recognition scores between grade equivalents 3 to 5. The adults' vocabulary knowledge appeared to be no better on average than children's by the time both were able to read (decode) text written at about the fifth grade level (68). In other words, we should not assume that ABE students will have well-developed vocabularies just because they are older and more experienced. After a certain point, vocabulary growth seems to depend on reading ability.

Vocabulary: implications for teachers

Does participation in ABE increase students' vocabulary achievement? Overall, results from the research are inconclusive: several studies found that participating students' vocabulary knowledge improved, but others found no improvement (69-72).

Initial research suggests that the longer ABE students remain in effective programs, the more their vocabularies will improve (70, 73). But more research is needed to identify teaching practices that are related to factors such as learner characteristics, specific instructional methods or materials, or the effects of teacher training. Two of these topics, learner characteristics and instructional materials, have been addressed by vocabulary instruction research with children. The NRP review of K-12 vocabulary instruction identified five methods (NRP, 4-3):

Explicit instruction: students are given definitions or other attributes of words to be learned. An example would be teaching students about the meanings of common roots, prefixes, and suffixes.

Implicit instruction: students are exposed to words or given opportunities to do a great deal of reading. As experiences with words increase, so do opportunities to learn new word meanings.

Multimedia methods: students learn vocabulary by going beyond text to experience other media such as graphic representations, hypertext, or American Sign Language that uses a haptic (contact) medium. Semantic mapping, where visual representations are used to illustrate the relationships among new and known word meanings, is an example.

Capacity methods: students practice extensively to increase their vocabulary capacity through making reading automatic. For instance, increasing a reader's fluency enables him or her to make better use of the clues in a text that help in learning new word meanings.

Association methods: students learn to draw connections between what they do know and words they encounter that they do not know. Pairing a new word with a known synonym is an example.

In addition, the NRP identified some trends that may assist adult educators:

- Repetition and the use of multiple contexts are important in vocabulary instruction (NRP, 4-4; RBP, 75-76);
- Active engagement is important in vocabulary instruction (NRP, 4-4); and
- Clarifying or restructuring vocabulary learning tasks may be especially useful for at-risk learners (NRP, 4-4, 4-21).

Reading Comprehension

What is comprehension?

Reading comprehension is the process of constructing meaning from what is read. To comprehend, a reader must decode words and associate them with their meanings. Phrases and sentences must be dealt with fluently enough so that their meanings are not lost before the next ones are processed. Since understanding the message must occur without face-to-face contact with the writer, comprehension relies on what a reader can derive from the text, based on prior knowledge and past

experience. Finally, readers must continuously monitor their construction of meaning to identify problems in understanding as they arise and make repairs as needed.

Why teach comprehension?

Whether one reads for work or for pleasure, comprehension is the goal. Comprehension is an active process; readers must interact and be engaged with a text. To accomplish this, proficient readers use strategies or conscious plans of action. Less proficient readers often lack awareness of comprehension strategies, however, and cannot develop them on their own. For adult literacy learners in particular, integrating and synthesizing information from any but the simplest texts can pose difficulties (78). Consequently, most ABE students will benefit from direct instruction in reading comprehension strategies as well as time spent practicing and discussing strategies for comprehending (80, 86-88).

How do you assess comprehension?

To prepare for instruction and to measure progress, ABE instructors should assess learners' ability to acquire and use information from text. Typically this can be done by asking students to read and answer questions about what they have read. Formats include multiple-choice, short answer, and cloze or fill-in-the-blank questions. Teachers can assess learners' knowledge of comprehension strategies, such as asking questions while reading, writing summaries, or creating outlines, by observing students while they read or by asking them about the strategies they use.

Because results from comprehension assessments may vary widely (depending on the test used and when it is administered), ABE instructors should choose comprehension tests carefully (79). They should also decide whether any secondary issues related to reading comprehension difficulties need to be addressed. For example, adults whose first language is not English or adults with a learning disability are more likely to have reading comprehension deficits (80). For adults in ESOL (English for Speakers of Other Languages) programs, knowledge of the English language will be an issue. For adults with a reading disability, problems with enabling skills such as alphabetic or fluency can be the source of the difficulty.

Comprehension: implications for teachers

Research indicates that participation in adult basic education can improve comprehension (81), and points to some very general approaches that may be effective.

Direct instruction in the use of comprehension strategies is one approach that may be effective (86). As summarized by the NRP, direct instruction includes:

- Helping learners to develop an awareness and understanding of their own cognitive processes;
- Guiding learners and modeling the actions that readers can take to enhance comprehension; and
- Providing learners with opportunities to practice strategies with the teacher's assistance until a gradual internalization and independent mastery occurs.

At the K-12 level, several effective strategies have been found: answering questions, asking questions, writing summaries, monitoring comprehension, using graphic and semantic organizers, using story structure, and learning cooperatively (where students work together while learning strategies). Teaching students to use more than one of these strategies, and when to use them, is especially effective (NRP, 4-6, 4-40; RBP, 97).

ABE research also suggests teaching comprehension in tandem with instruction in other reading components (88), an approach supported by very strong evidence from research at the K-12 level (NRP 2-4, 2-5, 2-20, 2-116, 3-3, 4-4; RBP, 96).

In some ABE instructional settings, student comprehension has been improved by manipulating the classroom environment. Some enabling factors in the classroom environment include: emphasizing learner-centered activities (89); providing assistance to teachers in the classroom with volunteers or paid assistants (90); and dealing explicitly with adults' motivation and how they feel about their reading (95).

Other suggestions supported by research include:

- Use adult oriented material, which can be motivating and necessary for decoding instruction (which, in turn, enables comprehension) (91).
- Devote sufficient classroom time to reading and writing instruction; one study suggests spending at least 70% of classroom time on reading and writing instruction (92).
- Encourage students to spend more time in ABE programs, which is associated with greater gains in reading comprehension achievement (92).
- Employ certified or experienced teachers for ABE instruction (93).

Putting It All Together

The ultimate goal in reading is comprehension: people read to learn and understand. Readers must interact with a text for comprehension to occur, combining its ideas and information with what they already know. They understand more when they are familiar with the basic vocabulary or concepts presented, or when they can develop their understanding of new words as they read. When a reader does not have adequate prior knowledge and cannot figure out key concepts, comprehension suffers.

Comprehension may also suffer when readers cannot recognize individual words in a text. A reader may be conceptually ready to understand a text, for example, but will be unable to do so if he or she cannot read the individual words. Alphabetic instruction gives readers the tools they need to decode individual words. To read individual words, the reader must know how the letters in our alphabet represent spoken words (alphabeticity). This includes knowing how words are made up of smaller sounds (phonemic awareness), and how letters and combinations of letters represent these sounds (phonics and word analysis).

The ability to decode individual words, however, is not sufficient. Readers must also be able to recognize strings of words rapidly as they read sentences and longer texts. Fluent reading is crucial to adequate comprehension.

As the previous sections have indicated, each major component of reading (alphabeticity, fluency, vocabulary, and comprehension) develops through specific practices. But just as all the components must function together for reading to be effective, they must be taught together to maximize instructional effectiveness.

One way that teachers can better prepare to address all of the components together in instruction is by creating reading profiles. A reading profile combines information from tests in several components to create a picture of a reader's strengths and needs for instructional purposes (Chall, 1994; Chall & Curtis, 1990; Roswell & Chall, 1994; Strucker, 1997). It involves assessing a student in each major component of reading and using a common measure, such as grade equivalents, to create an outline of strengths and needs.

Because reading profiles present a comprehensive view of learner strengths and needs across many aspects of the reading process (and for all kinds of readers, including those with reading disabilities and English language learners), teachers can use them to design a program of instruction that addresses all aspects of the reading process. Assessing only one reading component may not be sufficient to identify strengths and needs for instruction (32). Students with different profiles may need different mixes of instructional approaches. Developing specific approaches to instruction for different reading profiles may lead to more efficient instruction. This ensures a balanced approach in which no one aspect of the reading process is over- or under-emphasized (National Reading Panel, 2000; Snow, Burns, & Griffin, 1998; Snow and Strucker, 2000).

We conclude our summary of the results from the Reading Research Working Group review of adult reading instruction research by acknowledging an area that has received very little attention: motivation, or the need and desire to learn to read. Most educators maintain that effective reading and reading instruction cannot occur without sufficient motivation on the part of the learner. Motivation would seem to be especially important in adult literacy because in addition to an initial desire to learn to read adults must address many barriers to participation, set aside the time necessary to receive effective instruction, and overcome any embarrassment resulting from the stigma associated with seeking help for poor reading skills. When researchers have looked at motivation, results suggest that dealing with adults' literacy beliefs and goals for learning may increase their reading comprehension achievement (95).

Use of research-based principles will assist the adult educator in selecting teaching and learning experiences that will provide the greatest opportunities for success. The Adult Literacy Research Working Group continues to examine research and materials that will assist the adult educator in teaching reading so that adult learners can achieve their goals in the workplace, family, and community.

The classroom connection

This booklet is designed to summarize key findings from scientific research about teaching adults to read. For more information on how these research findings relate to instructional strategies, visit the Partnership for Reading website at www.nifl.gov/partnershipforreading, and click on the link for adult literacy.

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