They Don’t Know What? Understanding and Addressing the Hidden Needs of Many Adults

Daphne Greenberg, Maureen Lovett, Art Graesser, Jan Frijters, Lee Branum-Martin
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1/6 adults in the US read at elementary levels (PIAAC 2013). This impacts:
- correspondence with schools
- health
- workplace
Mission

CSAL is committed to understanding the reading-related characteristics that are critical to helping adult learners reach their reading goals and to developing instructional approaches that are tailored to adult learners’ needs and interests.
CSAL Projects

- Assessment of adults’ reading and reading related skills
- Refinement and development of a multiple-component reading intervention that includes a web-based, animated, e-tutor.
- Pilot testing of the reading intervention.
- Supplemental studies.
- Dissemination activities.
Assessment

- To clarify the appropriateness of the use of a wide array of standardized reading, motivational, and cognitive assessments with adult literacy learners.

- To provide clarity on the cognitive and motivational profiles of adult literacy learners.
Participants

500 Adult Literacy Students
- 250 in Toronto, 250 in Atlanta
- Reading between 3rd and 8th grade levels
- Non-native speakers and native speakers
Tests

37 Tests and Surveys

- Phonology
- Morphology
- Decoding
- Word Reading
- Fluency
- Vocabulary
- Written Comprehension
- Oral Comprehension
- Memory
- General Information/Academic Knowledge
- Reasoning
- Motivation, Computer Familiarity, Demographics
Preliminary Item Analyses  
(n = 115)

High, consistent discrimination

Consistent ordering, easy to difficult
Preliminary Item Analyses
(n = 115)

Good discrimination in the middle, low at the ends

Reasonable ordering, something of a floor effect.
Preliminary Item Analyses
(n = 115)

Poor discrimination

Reasonable ordering.
Refinement and Testing of Intervention

- Iterative Development of Intervention
- Feasibility Study
  - January-June 2015
  - 52 adults: 32 in Canada and 20 in US
  - Mean age 41 years, majority female, African American/Canadian, native speakers of English, non high school graduates
Intervention Components

- Human instruction in decoding
- Human instruction in comprehension
- AutoTutor
- Independent Reading
CLASSROOM: Adult PHAST PACES

Group Instruction by Teacher: decoding, vocabulary, and comprehension

Teacher Guided Group Discussion and Activities

Hybrid Lesson

Computer Application of Reading Comprehension Skills and Strategies

COMPUTER: AutoTutor
The starting point

- Effective instruction starts with an evidence-based model of *what is involved* in becoming a skilled reader.
- What must be learned in acquiring basic reading and comprehension skills?
- What must be in place to develop a fluent reading system?
- Do adults follow a different route to building a reading brain, or are the developmental pathways essentially the same?
Learning that is multidimensional and a focus that changes over time

Hollis Scarborough (2003)

**LANGUAGE COMPREHENSION**

**BACKGROUND KNOWLEDGE**
(facts, concepts, etc.)

**VOCABULARY**
(breadth, precision, links, etc.)

**LANGUAGE STRUCTURES**
(syntax, semantics, etc.)

**VERBAL REASONING**
(inference, metaphor, etc.)

**LITERACY KNOWLEDGE**
(print concepts, genres, etc.)

**WORD RECOGNITION**

**PHONOLOGICAL AWARENESS**
(syllables, phonemes, etc.)

**DECODING** (alphabetic principle, spelling-sound correspondences)

**SIGHT RECOGNITION**
(of familiar words)

**SKILLED READING:**
Fluent execution and coordination of word recognition and text comprehension.
The starting point
Effective instruction builds upon solid research evidence on what helps older struggling readers improve basic literacy skills

Reading Intervention in High School
A Literacy Intervention Program for teens reading between the 3rd and 5th grade levels

Designed to specifically address literacy learning problems in adolescents

More than 3000 struggling readers have received instruction in Canadian high schools

PHAST PACES is the research version of Empower™ Reading High School
Empower™ Reading: High School
An intervention for struggling readers in high school

Using an effective reading intervention for struggling adolescent readers as an instructional springboard

80 Hours of Instruction
(60 Minute Lessons)

Decoding Track
(30 Minutes)

Text Knowledge Track
(15 Minutes)

Comprehension Strategy Track
(15 Minutes)

(Lovett, Lacerenza, De Palma, & Frijters, JLD, 2012)
Findings from Our High School Study

- Significant gains on standardized word attack, word reading, and passage comprehension tests following PHAST PACES
- Significant gains in letter-sound knowledge and multisyllabic word identification
- Average effect size of .68 across outcomes
- At one year follow-up, passage comprehension showed continued growth
- Variability of outcomes among high school participants

(Lovett, Lacerenza, De Palma, & Frijters, JLD, 2012)
Adult PHAST PACES
CSAL’s Teacher-Led Group Instruction Programs

**Adult PHAST Program**
- Flexible strategies for decoding unfamiliar words
- Addresses gaps in letter-sound knowledge (*igh*, *ea*, *ie*)
- Identifying multisyllabic words with greater ease

**Adult PACES Program**
- Strategies to predict author’s purpose, acquire new vocabulary, and clarify confusion in text
- Promotes deeper comprehension through evaluating, elaborating, and summarizing from text
- Offers training in research and internet skills for learners at higher levels
Adult PHAST
Decoding Skills Program

SOUNDING OUT
Filling gaps in letter-sound knowledge and basic decoding skills

PEELING OFF
Learning affixes and how to deal with multisyllabic words

VOWEL ALERT
Learning variable vowel pronunciations and vowel combinations
Goal:
- Teach affix preskills necessary for successful strategy application (reading and spelling)

Skills for multisyllabic words:
- Identifying and articulating affixes
- Blending and segmenting syllables
- Strategy steps and dialogue
- Application to text reading

Concepts:
- Affix(es) can be ‘peeled off’ and root remains
- Multiple affixes must be connected
- Be flexible with variable affix pronunciations

Worksheet application:
- Prefix and suffix practice/dictation; word and sentence reading/dictation
Vowel Alert Strategy

Goal:
- Teach learners to be flexible with single vowel and vowel team sounds for successful strategy application

Skills for multisyllabic words:
- Recognizing and articulating the variable sounds of single vowels and vowel teams—and c, g, gh, ch effects
- Consonant teams—tch, dge
- Strategy steps and dialogue
- Application to text reading

Concepts:
- Flexibility with variable vowel sounds
- c and g alert; gh and ch alert

Worksheet application:
- Variable sound practice/dictation; word and sentence reading/dictation
Adult PACES Comprehension Program

P - Predicting Purpose with Text Signals and Key Information.
A - Acquiring Vocabulary with Context Clues.
C - Clarifying Common Sources of Confusion with Clarifying Questions.
E - Evaluating and Elaborating through Questioning.
S - Summarizing with Text Maps.
Lesson Anatomy
Utilizing Gradual Release of Responsibility Principles

EXPLANATION
• Clear discussion as to the skills and strategies that will be taught in the lesson.

JUSTIFICATION
• Discussing the utility and benefits of the skills and strategies taught.

MODEL EXAMPLE(S)
• Instructor lead demonstrations of the skills and strategies.

GROUP EXAMPLES(S)
• Instructor guided demonstrations where the instructor encourages correct responses and interjects as needed.

INDIVIDUAL PRACTICE
• Independent applications of the skills and strategies taught on a computer running the AutoTutor adult literacy computer program.
Relating reader and writer

Reading is a conversation between the reader and writer. It is up to the writer to pass on information in a clear way, and it is up to the reader to engage with the writer’s ideas and make sense of the information.
Common Sources of Confusion

- Pronouns
- Unfamiliar words and jargon
- Multiple Meaning words
- Nonliteral language
- Contradictions
- Ambiguous words/phrases
To evaluate our understanding of informative texts, we ask ourselves:

- What is the topic?
- What is the main idea?
- What information supports the main idea?

**Computers: Faster than the Speed of Byte**

Computers are very valuable machines because they work so fast. In the time it takes to push a few buttons, a bank manager can develop a mortgage payment plan for a potential home owner. Within seconds, telephone computers connect thousands of callers around the world. Long and difficult mathematical problems can be solved in milliseconds.
Ways to determine text type:

1. Ask yourself ‘Is this...
   - ‘...telling me a story?’
   - ‘...giving me information?’
   - ‘...stating an argument?’

2. Look for Key information.
   - Informative texts will be packed with **facts**.
   - Persuasive texts will have both **facts** and **opinions**.
   - Narrative texts will contain many **emotion triggers**.
Summarizing Informative and Persuasive Text Structures

- Statement and Explanation
- Problem and Solution
- Cause and Effect
- Compare and Contrast
- Description and Spatial
- Order: Time and Importance
- Procedural
Elaborating means adding to what is directly stated in a text. To do this we ask questions that help us make inferences.

**Work It Out**
- What is the writer suggesting here?
- Why is the writer telling me this?

**Uncover the Message**
- What are we supposed to learn from this text?
- What main messages is the writer trying to get across?
Evaluating the Author Through Questioning

Reading is a conversation between the reader and writer. Sometimes, writers do a good job of explaining something, but other times, they do not. So as we are reading, we should *Question the Writer* for clarity, quality, and credibility.
Sometimes, writers do a good job of explaining something; other times, they do not. We can **Question the Writer** for clarity, quality, credibility.

### Check for Clarity, Organization and Quality
- Does the writer explain this information or argument clearly?
- How could the writer have explained things more clearly?
- How well is the text organized?
- How well are the ideas connected to each other? Does the text flow? Does the text make sense?
- What are the flaws in this text?
- How could the writer improve this text?
- What are the strengths of this text?

### Check the Writer
- Who is the writer?
- What are the writer’s credentials?
- Is the writer an expert?

### Check the Source
- Where did the text come from?
- Is the text self-published or professionally published?
- When was the text written?

### Check for Bias
- What is the bias towards?
- Is the writer transparent about their bias?
### URL Knowledge

- **.com** - commercial (i.e. dictionary.com)
- **.edu** - education (i.e. csal.gsu.edu)
- **.gov** - government (i.e. usa.gov)
- **.org** - organization (i.e. wikipedia.org)
- **.net** - network (i.e. slideshare.net)
- **.us** – United States (i.e. vote.us)
- **.ca** – Canada (i.e. google.ca)
- **.uk** – United Kingdom (i.e. google.co.uk)
- **.au** – Australia (i.e. google.com.au)
Initial Program Components

- Adult PHAST
- Adult PACES
- Independent Reading
- AutoTutor
Program Components

- Adult PHAST
- Vocabulary Bridge
- Independent Reading
- Adult PACES
- AutoTutor
Teacher Guided Group Discussion and Activities

Group Instruction by Teacher: decoding, vocabulary, and comprehension

Teacher Guided Group Discussion and Activities

Hybrid Lesson

Computer Application of Reading Comprehension Skills and Strategies

CLASSROOM: Adult PHAST PACES

COMPUTER: AutoTutor
AutoTutor Highlights

- **Conversation Patterns**
  - Interacts with students by questioning, hinting, eliciting information, filling in gaps, correcting the student
  - Direct and indirect feedback
  - Intelligent conversational scaffolding

- **Multiple Agents (Trialogs)**
  - Human, student agent, and teacher agent
  - Vicarious learning, interactive tutoring, versus learning by teaching
  - Tutoring modes: Helping the peer, game competition, and authentic contexts rather than schoolish drill

- **Evaluating and Responding to Student Contributions**
  - Individualized instruction by responding adaptively to the student’s answers
  - Content knowledge, skills, strategy use, emotions, motivation
  - Advances in computational linguistics

- **Multiple Media**

- **Practical Texts and Tasks for Adults**
Are you new? Click HERE!

I have used CSAL. Click HERE!
Typing tutorial instructs students how to use a keyboard.
# Scope and Sequence of PACES Adult Comprehension Program

| Lesson 0 | Introduction to Program/Orientation |
| Lesson 1 | Predicting Using Text Signals |
| Lesson 2 | Predicting the Writer's Purpose |
| Lesson 3 | Predicting the Writer's Purpose in Hybrid Texts |
| Lesson 4 | Affixes |
| Lesson 5 | Punctuation Pre Skills for Acquiring |
| Lesson 6 | Word Types and Context Clues |
| Lesson 7 | Acquiring Words Strategy |
| Lesson 8 | Clarifying: Multiple Meaning Words |
| Lesson 9 | Clarifying: Pronouns |
| Lesson 10 | Clarifying: Non Literal Language |
| Lesson 11 | Review (PAC) |
| Lesson 12 | Differentiating Between Narrative, Informational, Persuasive Texts Using Key Information |
| Lesson 13 | Questioning Strategy: Narrative Texts |
| Lesson 14 | Bridge Building in Narratives |
| Lesson 15 | Summarizing Narratives Using a Plot Graph |
| Lesson 16 | Questioning Strategy: Informative Texts |
| Lesson 17 | Questioning Strategy: Persuasive Texts |
| Lesson 18 | Review of the Evaluating Strategy |
| Lesson 19 | Statement and Explanation |
| Lesson 20 | Problem Solution |
| Lesson 21 | Cause and Effect |
| Lesson 22 | Description and Spatial |
| Lesson 23 | Compare and Contrast |
| Lesson 24 | Time Order, Order of Importance |
| Lesson 25 | Procedural |
| Lesson 26 | Review of Text Structures |
| Lesson 27 | Elaborating on Narrative Texts |
| Lesson 28 | Elaborating on Informative Texts through Questioning |
| Lesson 29 | Elaborating on Persuasive Texts through Questioning |
| Lesson 30 | Looking at Documents/Question and Answer Structure |
### CSAL Database Application Class 1a1

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#### Lesson Breakdown

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<td>2. Writer's Purpose</td>
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<td>3. Hybrid Texts</td>
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<td>4. Affixes</td>
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<td>5. Punctuation</td>
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<tr>
<td>6. Context clues</td>
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<tr>
<td>7. Acquiring New Words</td>
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</tr>
<tr>
<td>8. Multiple Meaning Words</td>
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<tr>
<td>9. Pronouns</td>
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<td>10. Non-Literal Language</td>
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<td>11. Review</td>
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<tr>
<td>12. Using Key Information</td>
<td>77%</td>
</tr>
<tr>
<td>13. Questioning: Narrative</td>
<td>77%</td>
</tr>
<tr>
<td>14. Bridge Building</td>
<td>77%</td>
</tr>
<tr>
<td>15. Summarizing Narrative</td>
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</tr>
<tr>
<td>16. Questioning: Informational</td>
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</tr>
<tr>
<td>17. Questioning: Persuasive</td>
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Please note that averages are based on the students’ last attempt on a lesson. You may examine all attempts a student has made by clicking on a score.

**Lessons**

**Student in class**
### Details for whitney in lesson5

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## AutoTutor CSAL Lessons, PACES curriculum and Theory Alignment

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Highlights of AutoTutor Data

• Learning gains on comprehension level tests ($d = 0.44$)

• Curriculum components (P, A, C, E, S)
  • Question completion (varied between 83% & 89%)
  • Answer accuracy (varied between 67% and 75%)

• Theory (Graesser, McNamara, Kintsch, Perfetti)
  (Words, Syntax, Textbase, Situation Model, Rhetorical Structure)
  • Question completion (varied between 79% & 91%)
  • Answer accuracy (varied between 61% and 72%)
Feasibility Study Outcomes: Pen/Pencil Tests

- Reminder: Feasibility Study
- January-June 2015
- 52 adults: 32 in Canada and 20 in US
- Mean age 41 years, majority female, African American/Canadian, native speakers of English, non high school graduates
Standardized Pre-Post Gains across Multiple Outcomes
Percent who made Statistically-Reliable Pre-Post Gains by Measure

- Sounds
- Combinations
- Challenge Words
- Word Attack
- Word Identification
- Passage Comprehension
- Fluency
Standardized Pre-Post Gains on Motivation Constructs
Standardized Pre-Post Gains on Reading Value
Challenges/Surprises

- Challenges:
  - Technology capabilities at the adult literacy centers
  - Firewall issues

- Surprises:
  - More time than expected needed on PHAST lessons
  - Greater review needed on PACES lessons
  - Enthusiasm for course content and focus greater than expected
Feasibility Anecdotes

- “I love that we are learning the correct sounds of all the letters.”
- “At the hospital, I was able to use my strategies to know how to find my way around.”
- “I now know, how to know what to think about when reading something.”
- “I love how the teacher on the computer talks to me about my answers.”
- “Poor Jordan, he gets so many answers wrong—he needs to listen to what I say more often.”
Our Website
http://csal.gsu.edu/