



Introduction to the Center for the Study of Adult Literacy

**CSAL Demonstration for OCTAE and IES
OCTAE, Washington DC**

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Advisors

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Partners

- ❑ Texas Institute for Measurement and Evaluation Statistics (TIMES)
- ❑ American Institutes for Research (AIR)

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

- ❑ Explore the reading skills as well as the underlying motivational and cognitive attributes of adult learners.
- ❑ 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.

Learning that is multidimensional and a focus that changes over time

**LANGUAGE
COMPREHENSION**

BACKGROUND KNOWLEDGE
(facts, concepts, etc.)

VOCABULARY
(breadth, precision, links,
etc.)

LANGUAGE STRUCTURES
(syntax, semantics, etc.)

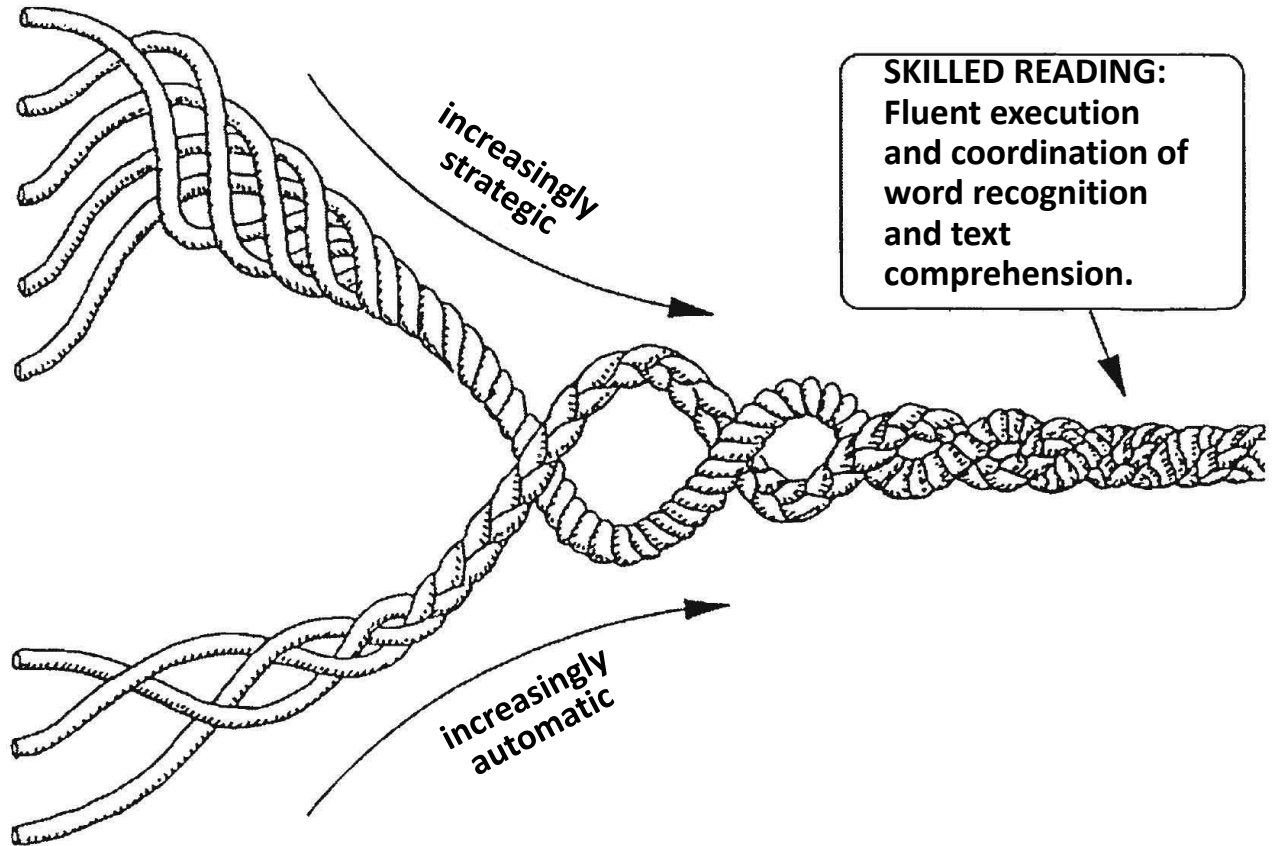
VERBAL REASONING
(inference, metaphor, etc.)

LITERACY KNOWLEDGE
(print concepts, genres, etc.)

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

DECODING (alphabetic
principle, spelling-sound
correspondences)

SIGHT RECOGNITION
(of familiar words)



Hollis Scarborough (2003)

Motivation

- ❑ Motivation plays a critical role in literacy learning.
- ❑ Not heavily studied.
- ❑ We focus on three motivational constructs:
 1. Self-reported motivation for reading
 - ❑ Interest, avoidance, task value, perceived difficulty and goal orientation
 2. Attributions for success and failure with reading
 - ❑ What reasons do adult readers give for successes and failures in reading?
 3. Affective episodes
 - ❑ What role do the memories and emotions of past reading experiences play in the present?

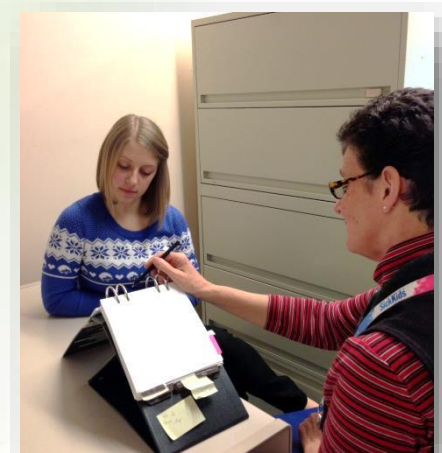
Testing Research Questions

- ❑ What are the relative underlying cognitive strengths and weaknesses of adults who struggle with reading?
- ❑ To what extent are there identifiable individual differences in the adults' patterns of strengths and weaknesses?
- ❑ To what extent do the items on tests appropriately measure the intended skills in the ways intended by the developers?
- ❑ Do the items coherently measure a unitary trait in the manner intended?
- ❑ To what extent do some items exhibit unfavorable characteristics, such as extreme difficulty or a lack of sensitivity?
- ❑ To what extent do the items function in a way that is practical for test administration?
- ❑ What is the structure of motivation for this population?
- ❑ How do individual differences in motivation relate to the cognitive and reading skills of adult struggling readers?

Testing

500 Adult Literacy Students

- ❑ 250 in Toronto, 250 in Atlanta
- ❑ Reading between 3rd and 8th grade levels
- ❑ Non-native speakers and native speakers



Testing of Components of Reading

- ❑ Phonological Awareness
- ❑ Morphological Awareness
- ❑ Decoding
- ❑ Irregular Word Reading
- ❑ General Word Reading Accuracy
- ❑ Vocabulary
- ❑ Word Reading Fluency
- ❑ Connected Text Fluency

Testing of Components of Reading

- ❑ Written Comprehension
- ❑ Oral Comprehension
- ❑ General Knowledge/Background Information
- ❑ Reasoning
 - ❑ Nonliteral Language
 - ❑ Meaning from Context
 - ❑ Inference
 - ❑ Ambiguous Sentences
- ❑ Memory
 - ❑ Long-Term Memory Retrieval
 - ❑ Short-Term Memory Retrieval
 - ❑ Working Memory/Division of Memory/Attentional Control

Cognitive and Motivational Functioning

Motivation and Other Influences

- ❑ Expectancy Value Questionnaire (EVQ: Eccles & Wigfield, 1995; 2002)
- ❑ Intrinsic Motivation Inventory (IMI: Ryan, 2002)
- ❑ Reading Motivation Scale (RMS: Guthrie & Wigfield, 2009)
- ❑ Affective Episode Interview (Gorges & Kandler, 2012)
- ❑ Demographic Questionnaire
- ❑ Reading Practices Questionnaire
- ❑ Computer Familiarity

Text Selection

- ❑ Critical to good instruction
- ❑ Related to both cognition and motivation
 - ❑ Interesting
 - ❑ Relevant to adult lives
 - ❑ Multiple purposes
 - ❑ Not too easy or too difficult
- ❑ Different genres, media, and technologies



Steps to Build Repository

- ❑ Administer adult literacy text survey.
- ❑ Solicit ideas and examples from publishers, government agencies, other centers, and adult literacy programs.
- ❑ Create an annotated list of resources.
- ❑ Develop analysis categories.
 - ❑ Topics
 - ❑ Text difficulty/characteristics with Coh-Metrix-TEA

CSAL Library Entries by Category

CATEGORY	# Easier	% Easier	# Medium	% Medium	# Harder	% Harder	TOTAL #
Health	60	16%	168	44%	157	41%	385
Food	10	15%	28	43%	27	42%	65
Babies	19	23%	35	43%	27	33%	81
Children Ages 2-12	34	9%	170	47%	159	44%	363
Children Ages 3-18	15	8%	72	40%	93	52%	180
Family	19	4%	226	46%	250	51%	495
Real Stories	202	19%	420	39%	451	42%	1073
Made Up Stories	4	100%	0	0%	0	0%	4
Advice	49	7%	310	47%	297	45%	656
Jobs	16	31%	12	23%	24	46%	52
Money	17	17%	39	40%	42	43%	98
History	6	10%	31	50%	25	40%	62
Science	30	38%	29	37%	19	24%	78
Other	11	37%	12	40%	7	23%	30
TOTAL # of ENTRIES	492		1552		1578		3622
Percent of Total Entries	14%		43%		44%		

Examples of HealthTopics

- [abuse](#)
- [ADHD](#)
- [AIDS](#)
- [autism](#)
- [bee stings](#)
- [breast cancer](#)
- [caffeine](#)

Survey Results

- **630 respondents in US**
 - **84% female**
 - **48% part time; 34% full time; 9% volunteer; 10% other**
 - **40% Northeast; 25% South; 24% Midwest; 11% West**
 - **58% Urban; 20% Suburban; 21% Rural**
 - **34% Community Based; 26% State Run; 15% Public School**

Survey Results

- **Resources used in reading lessons:**
 - Short stories 84.94%
 - Newspapers 76.12%
 - Documents 66.99%
 - Digital texts 64.42 %
 - Poetry/songs 60.90 %
 - Biographies 58.33%
 - Comic books/graphic novels 14.74 %
 - Religious Materials 7.85%

Reaching Out to the Field

- **Survey**
- **LINCS**
- **COABE, USCAL**
- **State Meetings/Conferences**
- **Webinar**
- **Expert Panel**
- **E-Blasts**
- **Website**

Our Website

csal.gsu.edu

Intervention Research Questions

- ❑ To what extent is the research-based intervention developed in this project more effective than typical methods used for adult learners?
 - ❑ What are the growth rates and nature of change in reading skills through intervention?
 - ❑ Which of the cognitive and motivational skill predictors explain person-to-person variability in those growth rates?
 - ❑ Are significant gains made across pretest, midpoint , and posttest points independent of reading instruction?
 - ❑ Are there growth rate differences between the intervention group and the control group on the posttest measures?
- ❑ Which measures effectively identify students who are appropriate for the intervention, and which measures effectively assess student learning outcomes?

Developing instruction to meet the needs of adult struggling readers

The many challenges

- ❑ Making instruction relevant to their goals
- ❑ Designing and using materials of interest
- ❑ Addressing gaps in foundational skills, strategies, and knowledge
- ❑ Structuring learning tasks that will generate motivation to engage and maintain effort
- ❑ Celebrating tangible success and providing a cognitive framework for failures
- ❑ Maximizing outcomes from whatever time the adult learner can devote to instruction and practice

Components of the Instructional Framework

- Word attack skills and decoding strategies
- Vocabulary knowledge
- Knowledge of text structures and conventions
- Reading comprehension strategies
- Individualization of instruction through the use of intelligent tutoring technology
- Motivation and engagement in literacy learning activities
- Choice in text and topic selection

Our Philosophy

- ❑ Guided by Competence Motivation (Elliot & Dweck, 2005) and Self-Determination Theory (Deci & Ryan, 2002)
 - ❑ Goals/interests
 - ❑ Engagement in, and persistence with reading tasks
 - ❑ Cognitive attributions for success and failure
- ❑ All learners should feel that:
 - ❑ The instructional experience meets their own needs, interests, and goals
 - ❑ Is a worthwhile investment of personal time and energy, which are often limited by competing demands in their lives
- ❑ Therefore, we plan on:
 - ❑ Providing the learner control over approaches to difficult reading tasks and what he/she reads and works on
 - ❑ Supporting autonomy by ensuring that the learner sees progress in their own skills
- ❑ Each learner will meet with the instructor at regular intervals to:
 - ❑ Review testing results
 - ❑ State their interests and needs
 - ❑ Formulate personal goals

The starting point

Effective instruction builds upon solid research evidence on what helps older struggling readers improve basic literacy skills

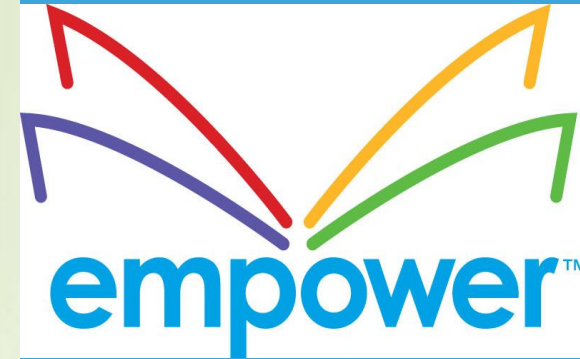
Reading Intervention in High School

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



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)



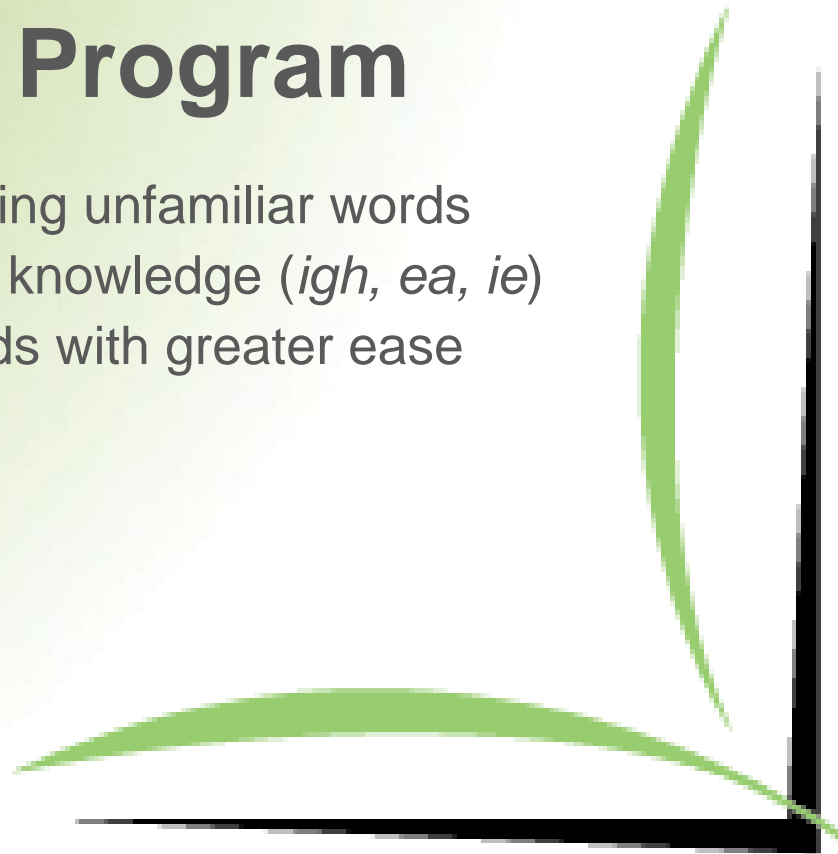
New Directions in Intervention Design

- PHAST PACES as a starting point
- Instruction from human instructor in small groups
- Comprehension practice using an intelligent tutoring system (AutoTutor)
- Text repository for our adult learners

csal

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 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

Adult PACES Comprehension Program

P

Predicting Purpose with Text Signals and Key Information.

A

Acquiring Vocabulary with Context Clues.

C

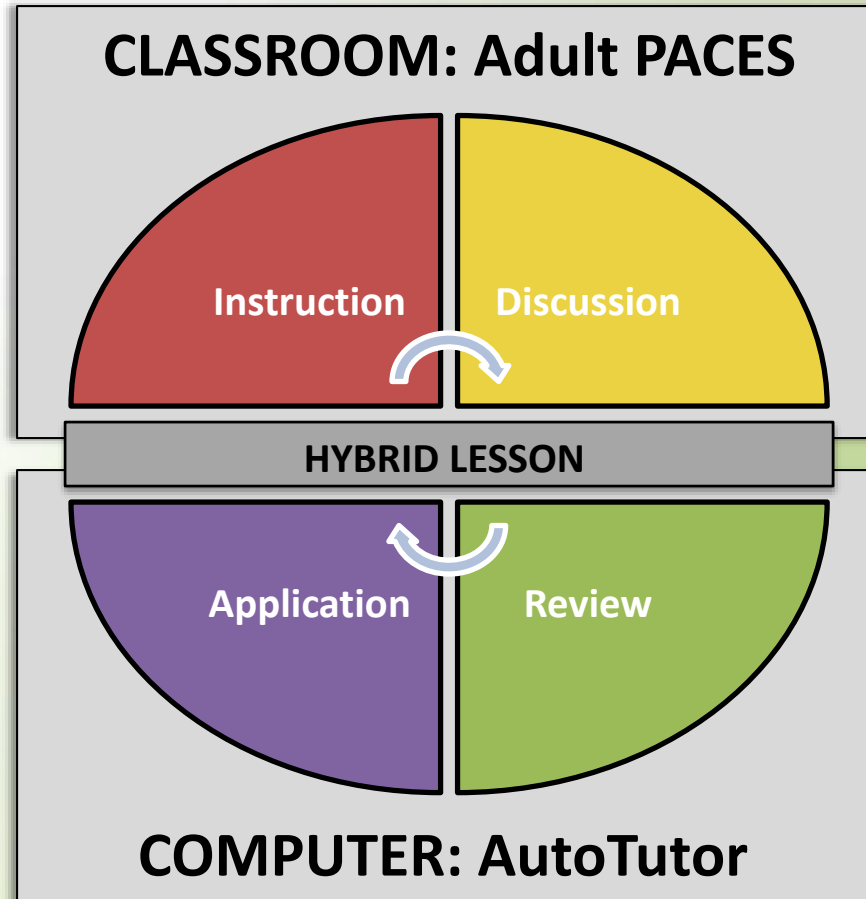
Clarifying Common Sources of Confusion with Clarifying Questions.

E

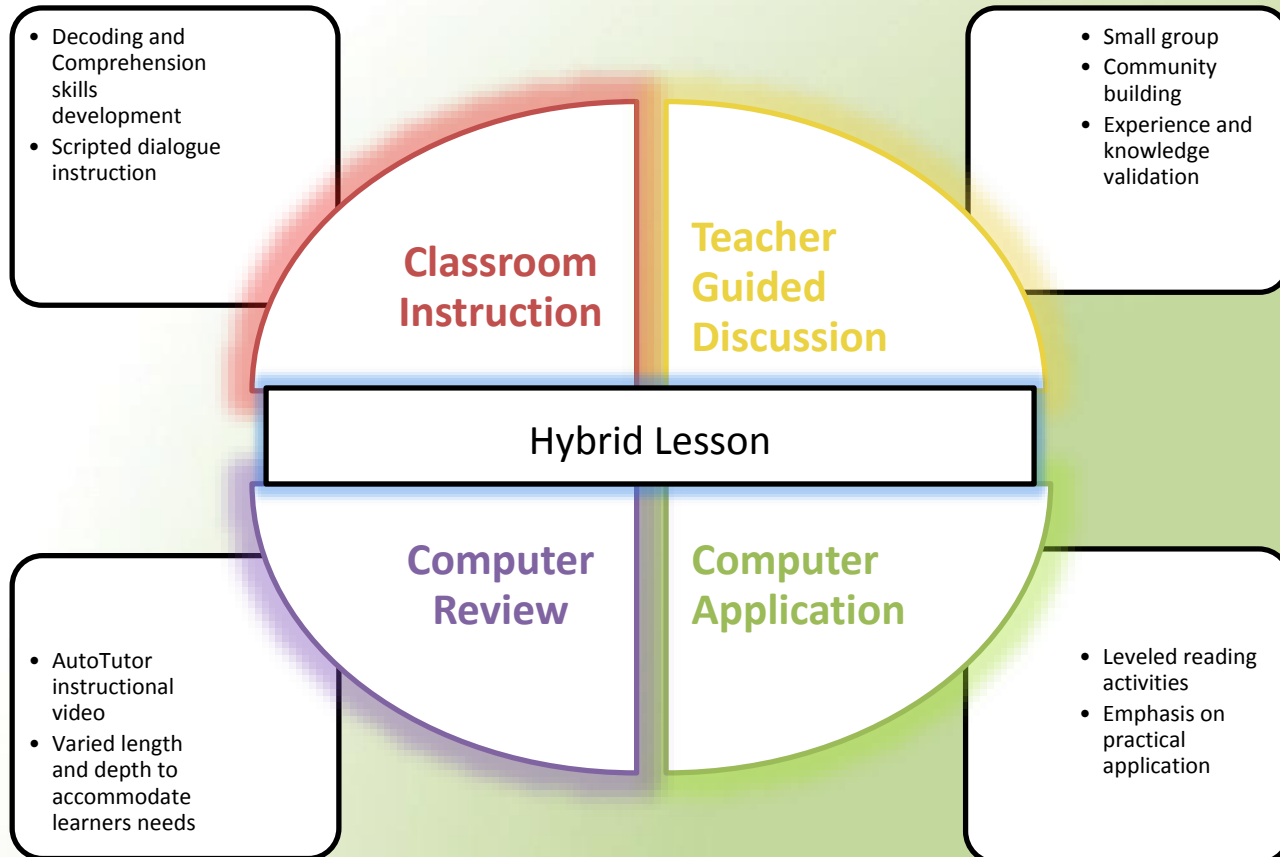
Evaluating and Elaborating through Questioning.

S

Summarizing with Text Maps.



How We Incorporate the Four Key Components

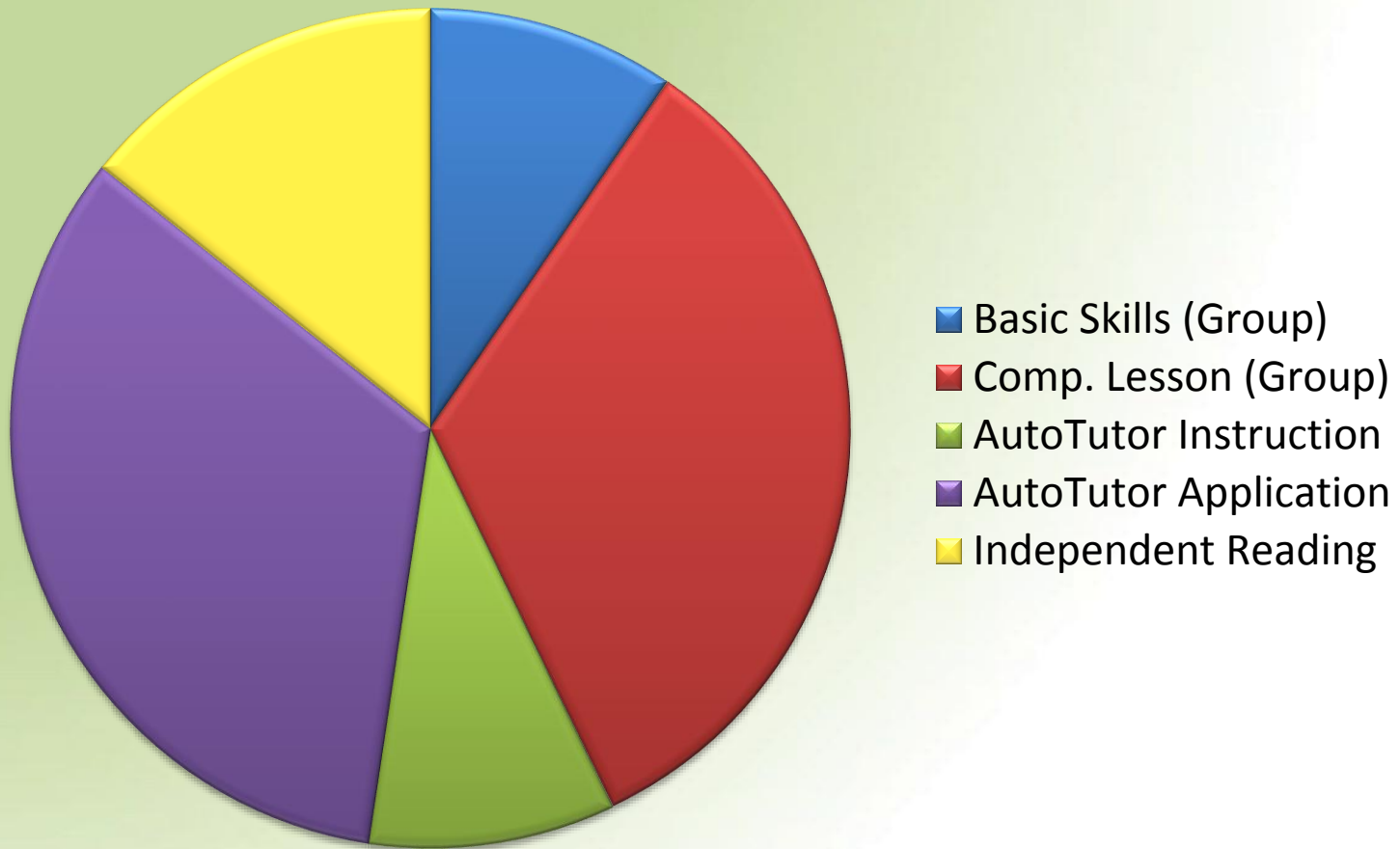


Instructional Framework for Weaker Decoders



- Basic Skills (Group)
- Comp. Lesson (Group)
- AutoTutor Instruction
- AutoTutor Application

Instructional Framework for Stronger Decoders



AutoTutor Trialogs for CSAL

The computer modules:

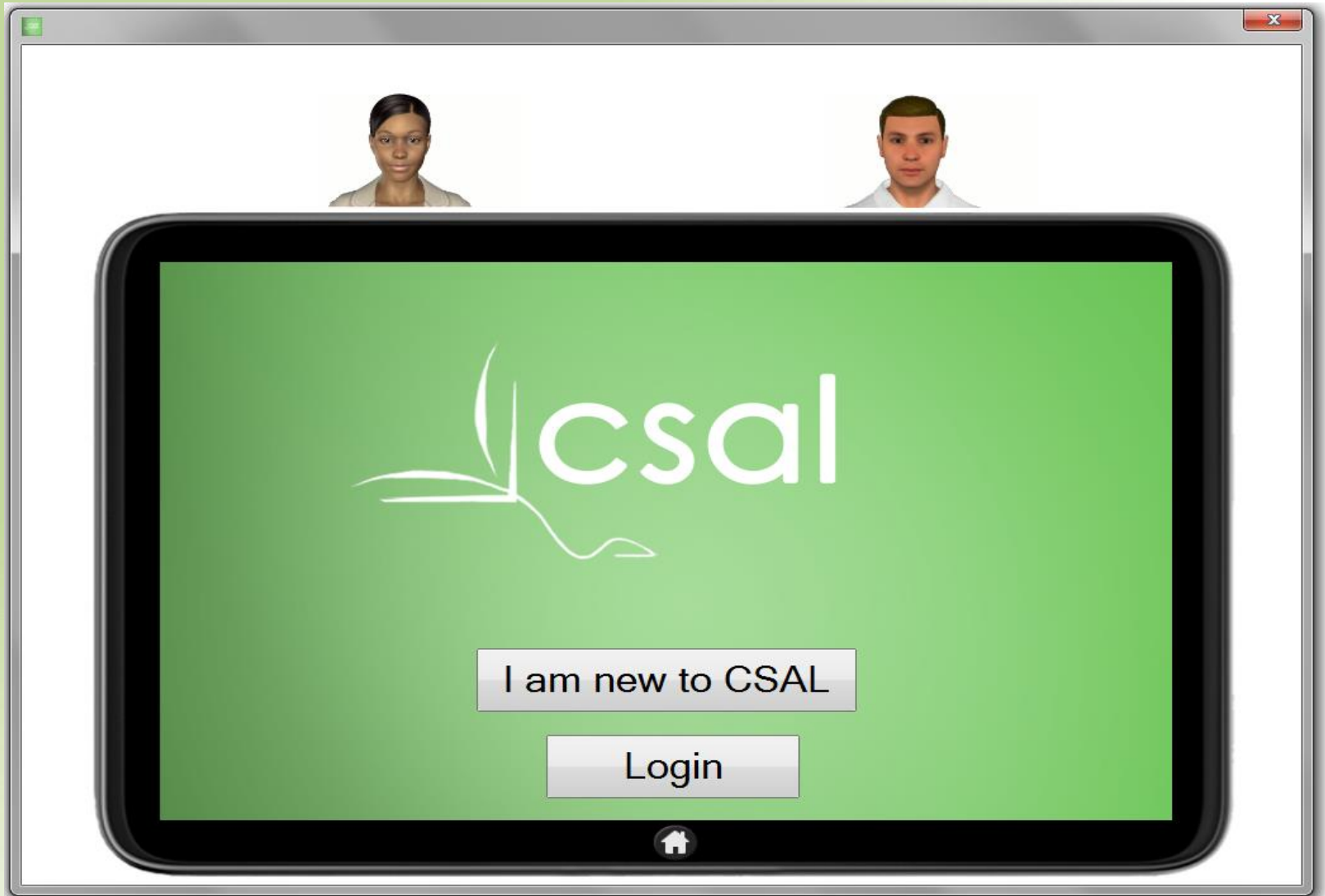
- 1. Summary Refresher Video (2 minutes)**
- 2. Exercise Spin-off of Human Intervention AND/OR**
- 3. Practical Application**

Self-directed reading facility as a separate technology

Features of Computer Environments

- **Web application**
- **Simple interface**
- **Trialogs: human interacting with conversational agents (tutor and student)**
- **Multimedia presentations**
- **Student input: clicks, yes/no, multiple choice, natural language**
- **Adaptive to student performance**

Introductory screen for the CSAL AutoTutor program



Functions of Conversational Agents

- **Help when initiated by the user**
- **Navigational guide**
- **Modeling action, thought, and social interaction**
- **Adaptive intelligent conversational dialog**
- **Many roles: peers, tutor, mentor**

Typing tutorial instructs students how to use a keyboard



Practical Activity on a Prescription Drug



What is one of the specific uses of this drug?

Give the body nutrients

Relieve sneezing and runny nose

Relieve headaches



AutoTutor Development

Orientation: Introduction to CSAL

Lesson 7: Drop Down Menu

Lesson 7: Sample Refresher Video of Lesson Content

Lesson 9: Example of Repetitive Activity

Lesson 11: Review Quiz Game

Lesson 13: Drag and Drop Fill-in-the-Blank

Lesson 14: Hover Cues and Drag and Drop Icons

Lesson 15: Modeling and Answer Animation

Practical Topics Montage: Variety of Topics Included in CSAL

User Experience Montage: Interactions Available in Activities