Improving Practice: The Hope of Theory and Research

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Why are we here?

Adult Skills in America: A Story of Two Nations
Many people think they know who needs adult education services.

Most of them don’t know who actually needs assistance.
Results from the PIAAC
(OECD assessment of adult skills)

- Literacy
- Numeracy
- Problem-solving in Technology-Rich Environments
Survey says...

Approximately 60% are below average.
Numeracy

64%

10%  20%  34%  27%  9%

0    1    2    3    4 & 5
CAN:
read brief paragraphs about the results of an election and determine the name of the winning candidate.

http://educationpolicy.air.org/blog/new-analysis-spotlights-employees-basic-skills-gap
CAN’T:
go to a website about a fundraising event and find the sponsor’s phone number.

http://educationpolicy.air.org/blog/new-analysis-spotlights-employees-basic-skills-gap
CAN:
look at a photo of 35 candles in a box and say how many boxes would be needed to hold 105 candles.

http://educationpolicy.air.org/blog/new-analysis-spotlights-employees-basic-skills-gap
CAN’T: figure out how much a salesman should be paid for mileage (miles x per mile rate) plus expenses.

http://educationpolicy.air.org/blog/new-analysis-spotlights-employees-basic-skills-gap
Problem-solving in Technology Rich Environments

3 out of 10 adults have difficulty sorting e-mails into folders
Nearly two-thirds are employed.

Source: OECD, Time for the U.S. to Reskill?
About two-thirds have at least a high school education and most are American-born.

Source: OECD, Time for the U.S. to Reskill?
Each age group performed similarly (i.e., the young were just as weak as the old).
So basically, the difficulty your students face is a difficulty many American adults face.

The difference is that most of them don’t have someone like you.
How should you serve?

Teaching Adults: Theory and Research
[How] Is learning different for adults?
Andragogy: Teaching Adults
Malcolm Knowles
Malcolm Knowles’s Theory of Andragogy

More independent and self-directed learners
Malcolm Knowles’s Theory of Andragogy

Have a rich set of life experiences to draw upon
Malcolm Knowles’s Theory of Andragogy

Want to learn about things that are immediately relevant to their social roles and personal lives.
Malcolm Knowles’s Theory of Andragogy

Want to learn in order to solve problems – must be applicable knowledge
Malcolm Knowles’s Theory of Andragogy

Need to know why they need to know (relevance needs to be apparent)
Malcolm Knowles’s Theory of Andragogy

Have a wide array of “internal incentives” for learning (e.g., self-esteem)
Why Adults Learn (Lieb, 1991)

Social relationships (to make friends)
External expectations (to comply)
Social welfare (to improve the community)
Personal advancement (to improve status)
Escape/Stimulation (to avoid boredom)
Cognitive interest (to satisfy curiosity)

Different cognitive abilities have different trajectories.

The things we “know”

Our ability to regulate


Prior knowledge and life experience affect current learning.
Research in Adult Education

- Literacy & reading
- Motivation & persistence
- Alternative/blended program structures and models
Does education research have anything specific to offer?

Trends in Cognitive Research
The following practices have received a lot of attention and are still being evaluated.

These have not been tested with our target population, so we cannot ensure that they “work” for adults with low literacy.
1. Distribution: Spacing and Interleaving

- Do not encourage cramming.
- Encourage students to pause, return, try to remember on their own, and then check.
- Mix examples and question types (e.g., have multiplication, addition, and fractions together).

1. Distribution: Spacing and Interleaving

Students learn better when there is a variety and when there’s a delay.

Roediger & Pyc (2012)
2. Explanatory Questioning

Elaborative interrogation: students ask themselves questions and provide answers

Self-explanation: students explain to themselves why certain points are true

Roediger & Pyc (2012)
2. Explanatory Questioning

- This may require some initial modeling and encouragement.
- You may want to explain to your students why you’re doing this.
- (Remember that all skilled readers do these sorts of things implicitly.)

This helps to encourage deeper processing and personal engagement.

Roediger & Pyc (2012)
3. Frequent quizzing

Common “study” approaches (e.g., highlighting and re-reading) are not as beneficial as low-stakes quizzes.

- SSSS: pure studying
- SSST: one test
- STTT: study once, test three times

Roediger & Pyc (2012)
3. Frequent quizzing

Benefits of frequent quizzing:
• retrieving information makes that same information more retrievable in the future
• Students learn what they know and what they do not know and can adjust accordingly
• Teachers learn what students know and what is still problematic (formative assessment)

Assessing learning (low-stakes testing) helps both the student and the teacher improve.

Roediger & Pyc (2012)
4. Addressing beliefs, attributions, and mindsets

- Many students may have negative experiences or heightened anxiety around school.
- Cultural stereotypes and biases affect students’ perceptions of their abilities.
- Some people believe intellect and academic skills are fixed (i.e., you’re smart or your not).

Changing people’s perceptions can help set them on a positive, recursive path.

4. Addressing beliefs, attributions, and mindsets

A “belonging” intervention with incoming freshmen showed a 3-year gain GPA and self-reported happiness and well-being, especially strong for African-American students.


In conclusion...

What Might This Mean for You (and Your Students)?
Reality

You and your students have a difficult task.
Track progress not just achievement.

Changes in behavior and beliefs are essential and count!
Principles to Take with You

**Adult Learning Theory:**
1. Adults need to be involved in the planning and evaluation
2. Keep instruction “problem-centered” instead of “content-centered”
3. Adult learners’ experiences should inform the basis of learning activities
4. Activities should be immediately relevant to and useful for adults’ lives
   
   (Knowles, 1984)

**Cognitive Science Research:**
1. Spacing/Interleaving
2. Explanatory questioning
3. Frequent quizzing
4. Address beliefs, attributions, and mindsets