HEALTH AND HEALTH LITERACY THROUGH THE PIAAC LENS

4 May 2015, 3:00 - 4:15 pm ET

National Coalition for Literacy
Leading Questions

• What does the acronym PSTRE stand for?

• How is the acronym pronounced?
Webinar Agenda

- **Adult Health: How Is It Related to Literacy, Numeracy, and Technological Problem-Solving Skills?**
  
  Esther Prins, Pennsylvania State University

- **Effective Messages**
  
  Dan Rafter, Spitfire Strategies

- **Advocacy in Action**
  
  Allison Kokkoros, Carlos Rosario International Charter School
Presenters

- **Esther Prins**, Associate Professor of Adult Education, Penn State University, and Co-Director, Goodling Institute for Research in Family Literacy and Institute for the Study of Adult Literacy

- **Dan Rafter**, Senior Account Manager, Spitfire Strategies

- **Allison Kokkoros**, Executive Director and CEO, Carlos Rosario International Charter School

- Moderator: **Deborah Kennedy**, Associate Vice President, Adult English Language Education, Center for Applied Linguistics
Awareness Raising and Advocacy for Adult Literacy

- A nationwide coalition of the leading national and regional organizations dedicated to advancing adult education in the U.S. since 1984
- Supports advocates, leaders, and others who care about literacy to make a positive difference for adult education and family literacy

national-coalition-literacy.org
Special Thanks

The National Coalition for Literacy thanks the Dollar General Literacy Foundation for its generous support of advocacy for adult education.

national-coalition-literacy.org
ADULT HEALTH: HOW IS IT RELATED TO LITERACY, NUMERACY, AND TECHNOLOGICAL PROBLEM-SOLVING SKILLS?

National Coalition for Literacy Webinar
May 4, 2015

Esther Prins
Shannon Monnat
Carol Clymer
Blaire Toso

Pennsylvania State University
Social Determinants of Health

- We know a lot about formal educational attainment and health…but far less about basic skills.

- Many prior studies on literacy/numeracy did not account for background characteristics → couldn’t compare apples and apples.

Adapted from Braveman, Egerter, & Williams (2011, p. 383)
PIAAC

- Program for International Assessment of Adult Competencies

- 24 countries (5,000+ people per country)

- Ages 16 to 65

- Background questionnaire (education, health, employment, skill use at work & home, etc.)
### 3 skills assessments: 4 or 6 levels

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Definition</th>
<th>&lt; L1</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literacy</td>
<td>“understanding, evaluating, using, &amp; engaging with written texts to participate in society, to achieve one’s goals, &amp; to develop one’s knowledge &amp; potential”</td>
<td>0-175</td>
<td>176-225</td>
<td>226-275</td>
<td>276-325</td>
<td>326-375</td>
<td>376-500</td>
</tr>
<tr>
<td>Numeracy</td>
<td>“the ability to access, use, interpret, &amp; communicate mathematical information &amp; ideas, in order to engage in &amp; manage the mathematical demands of a range of situations in adult life”</td>
<td>0-175</td>
<td>176-225</td>
<td>226-275</td>
<td>276-325</td>
<td>326-375</td>
<td>376-500</td>
</tr>
<tr>
<td>Problem-solving in technology-rich envts. (PS-TRE)</td>
<td>Using digital technology, communication tools &amp; networks to acquire &amp; evaluate information, communicate with others &amp; perform practical tasks</td>
<td>0-240</td>
<td>241-290</td>
<td>291-340</td>
<td>341-500</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Research Question

Are literacy, numeracy, and technological problem-solving skills associated with self-rated health (SRH), after controlling for various sociodemographic characteristics?

• U.S. respondents only (N=4,647)
Variables

• Dependent (outcome) variable: self-rated health
  • “In general, would you say your health is excellent, very good, good, fair, or poor?”

• Independent (predictor) variables: literacy, numeracy, & PS-TRE scores

• Control variables
  • Age
  • Sex
  • Employment status
  • Living with spouse or partner
  • Children 12 or younger
  • Total people in household
  • U.S.- or foreign-born
  • Mother’s and father’s educational attainment
  • Vision or hearing problems, diagnosed learning disability
  • Health insurance status
  • English proficiency score
These respondents differ in only 1 way: their literacy, numeracy, or PS-TRE scores.

Maria

- Latina woman
- employed
- born in US
- 25-34 years old
- no HS diploma
- lives with spouse
- no health insurance
- has children under 12
- 4 people in household
- speaks English “very well”
- mother completed HS, father did not
- no vision/hearing problems or learning disability

literacy score: 230*

*average for U.S. adults with < high school

Does Lucia report better health?

Lucia

- literacy score: 240
Analysis

• How is health related to:
  • Literacy?
  • Numeracy?
  • PS-TRE?
• Without any control variables
• After accounting for all background characteristics
• PIAAC data cannot be used to determine whether literacy, numeracy, or PS-TRE caused better health.
Results

- Average scores
  - Literacy: 272 (Level 2 = 226 – 275)
  - Numeracy: 255 (Level 2 = 226 – 275)
  - PS-TRE: 278 (Level 2 = 241 – 290)
- Health: excellent (34%), very good (24%), good (28%), fair (11%); poor (3%)
- Female (51%)
- Ethnicity: non-Hispanic White (67%); Hispanic (14%), non-Hispanic Black (11%); Asian (5%); Other (2.5%)
- Education
  - No HS diploma (14%)
  - HS/some college (41%)
Results

- Parents’ educational attainment:
  - Mother: < HS (26%), HS (47%), college+ (27%)
  - Father: < HS (27%), HS (45%), college+ (28%)

- Employment:
  - Employed (65%)
  - Unemployed (8%)
  - Not working due to disability (5%)

- No health insurance (20%)
- Vision or hearing problem or diagnosed learning disability (23%)
- Foreign-born (15%)
Literacy scores for excellent & very good health are significantly higher than good, fair, & poor categories \((N=4,647; \text{weighted})\)
The relationship between numeracy and health shows that numeracy scores for excellent & very good health are significantly higher than good, fair, & poor categories (N=4,647; weighted).
PS-TRE scores for excellent & very good health are significantly higher than good, fair, & poor categories (N=3,942; weighted)
Relationships between literacy, numeracy, PS-TRE and health 

**without** control variables (apples & oranges)

- 10-point increase on literacy scale: 11% greater odds of being in a better health category
  - E.g., poor $\rightarrow$ fair, good $\rightarrow$ very good

- Numeracy: 9% greater odds

- PS-TRE: 8% greater odds
Relationships between literacy, numeracy, PS-TRE and health with control variables (apples & apples)

- 10-point increase on the literacy scale: 3% greater odds of being in a better health category

- Significance of numeracy & PS-TRE disappeared
  - Resources that help people improve these scores are the same ones that contribute to health
These PIAAC respondents differ in only 1 way: their literacy, numeracy, or PS-TRE scores.

Maria
- Latina woman
- employed
- born in US
- 25-34 years old
- living with spouse
- has children under 12
- 4 people in household
- no high school diploma
- speaks English “very well”
- does not have health insurance
- mother completed high school, father did not
- no vision or hearing problems or learning disability

literacy score: 230*
*poor health
*average for U.S. adults with < high school

higher numeracy or PS-TRE score: not significantly related to health

health categories: poor, fair, good, very good, excellent

Lucia
- literacy score: 240
- +3% odds of better health (fair)
Many other respondent characteristics are more strongly related to health than is literacy.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Odds of reporting better health</th>
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<tbody>
<tr>
<td><strong>LITERACY SCORE</strong></td>
<td></td>
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<tr>
<td>+3%</td>
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<tr>
<td><strong>Educational Attainment (reference group = &lt;HS)</strong></td>
<td></td>
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<tr>
<td>Master’s degree or higher</td>
<td>+212%</td>
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<tr>
<td>Bachelor’s degree</td>
<td>+92%</td>
</tr>
<tr>
<td><strong>Parental Educational Attainment (reference group = &lt;HS)</strong></td>
<td></td>
</tr>
<tr>
<td>Mother completed high school</td>
<td>+23%</td>
</tr>
<tr>
<td>Father attended college or more</td>
<td>+36%</td>
</tr>
<tr>
<td><strong>Employment Status (reference group = employed)</strong></td>
<td></td>
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<tr>
<td>Unable to work due to disability</td>
<td>-96%</td>
</tr>
<tr>
<td>Retired</td>
<td>-39%</td>
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<tr>
<td>Foreign-born</td>
<td>+48%</td>
</tr>
<tr>
<td>Vision/hearing problems or diagnosed learning disability</td>
<td>-42%</td>
</tr>
<tr>
<td>Worse English proficiency</td>
<td>-8%</td>
</tr>
<tr>
<td>Has health insurance</td>
<td>+5%</td>
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</tbody>
</table>
Implications

- Literacy matters for improving health – for all racial/ethnic and educational attainment groups

- Package of socioeconomic resources accumulated over lifetime → associated with higher literacy, numeracy, PS-TRE scores AND better health

  - The resources that help us improve health are the same ones that help us improve literacy, numeracy, & PS-TRE scores

  - Socioeconomic resources are the pathway through which literacy, numeracy, and PS-TRE are related to health

- Formal education
- Parents’ education
- Income
- Employment
Implications

• Can’t isolate any **single** thing that improves health → need literacy instruction + other interventions

  • Some strong predictors of health are beyond our control

• Others CAN be modified through policy:
  • Increase 4-year college completion → multi-generational impact
  • Provide support services for people with disabilities, vision/hearing problems
  • Expand ESL instruction
  • Increase access to health insurance

• People DON’T have access to same resources → target those with greatest unmet literacy and financial needs, least education
Future Research

• Need longitudinal data to test causal pathways
  - Formal education
  - Parents’ education
  - Income
  - Employment
  - Literacy
  - Numeracy
  - Tech. problem-solving
  - Health

• Does instruction improve health?

• Why do only people with master’s + accrue health benefits from higher PS-TRE scores?
  - “vicious cycle of digital exclusion”?
  - People with least computer familiarity didn’t answer PS-TRE questions?
  - PS-TRE questions didn’t tap into the technological & critical analysis skills that people use to manage their health?

• Health, literacy and numeracy, and immigration
  - Immigrants vs. U.S.-born
  - Hispanic vs. Asian immigrants
Caveats

- Can’t determine causality
  - Need longitudinal study tracking people from childhood through adulthood

- PS-TRE analysis excluded people who didn’t complete PS-TRE questions

- PIAAC doesn’t reflect full range of capabilities: what people do with literacy, numeracy, PS-TRE in daily lives
  - Use can improve proficiency (Stephen Reder)
Access the Full Paper


- Paper: http://tinyurl.com/o5xplpa

- 1-page summary: http://tinyurl.com/pecmbj7
Effective Messages

Dan Rafter, Spitfire
May 4, 2015
Target Your Audience

- Who must you reach to achieve your objective?

Which humans will convey our message of global cooling?
Audience Targeting

Think Small!
Share knowledge
Build will
Reinforce action
SHARE KNOWLEDGE

- Doesn’t know information
- Knows but doesn’t care
- Knows but doesn’t believe
96 ELEPHANTS ARE KILLED EVERY DAY IN AFRICA
BUILD WILL

• Know what their barriers are
• Stay in the comfort zone
• Make the reward bigger than the risk
flex·i·tar·i·an | fleks.uh.TAYR.ee.un | n.
someone who substitutes an alternative protein for meat, dairy, poultry or fish.

Be a Flexitarian.
It’s simple.
Once a week, skip meat.
REINFORCE ACTION

• Pat on the back
• Convey win
Reinforcing Action

Where’s the love?
Core Concerns

• What do THEY care about?
Core Concerns

• Tap existing values

• “Big” values vs. “small” values

• It’s not about you. It’s about your audience.
Theme

• How do you connect?

• How should you grab their attention?
Youth

In Missouri almost one in three high school students (30.3%) and one in six middle school students (14.9%) smoke.

The smoking rate of Missouri's 9th grade students (27 percent) is almost that of the adult rate (27.2 percent), but the 10th grade smoking rate (29.8 percent) exceeds the adult rate, increasing in the 11th grade (29.6 percent) and peaking in the 12th grade at 35.4 percent.

In 2001, Missouri's high school smoking rate (30.3 percent) is now lower than the national average of 34.5 percent, and has declined from the 1995 rate of 40 percent.

Three out of five (60%) Missouri high school students who smoke reported trying to quit smoking.

Between 1993 and 1997, cigarette smoking among college students nationwide rose 27.8 percent, from 22.3 percent to 28.5 percent.
NO WONDER TOBACCO EXECUTIVES HIDE BEHIND SEXY MODELS

Truth

WARNING: Their brand is lies. Our brand is truth
TOBACCO FREE
It's a beautiful thing.
Message

people: Chill out!
-penguins
Prioritize funding for health literacy.

Our health care system is less costly and better positioned to deliver the best care to those who need it most.

Everyone should have the knowledge they need to make good decisions about their health and health care.

Investing in health literacy will increase our overall health and decrease our costs.
Health Literacy – What It Means to People

$\$$ $\$$ $\$$
Health Literacy Message Box

Value

Vision

Ask

Barrier
Four Sins of Message

The earth is warming at a rate 1000% times faster than last year, reminiscent of the paleozoic era, and as Aptenodytes patagonicus we need to ponder this.
Four Sins of Message

• MEGO
Evidence indicates that, adjusting for variation in family income, children with health coverage have better outcomes on standard developmental indicators than do children without such coverage, controlling for environmental factors and adjusting for access to primary care providers.
Four Sins of Message

• MEGO
• Literal sclerosis
• Statistical overload
Four Sins of Message

• MEGO
• Literal sclerosis
• Statistical overload
• Lack of narrative

The earth is warming at a rate 1000% times faster than last year, reminiscent of the paleozoic era, and as Aptenodytes patagonicus we need to ponder this.
One Final Thought....
Advocacy in Action
Carlos Rosario International Public Charter School

Allison Kokkoros
CEO and Executive Director
The CR Mission

Our mission is to provide education that prepares the diverse adult immigrant population of Washington D.C. to become invested, productive citizens and members of American society who give back to family and community.

The school accomplishes this through excellence in teaching and learning in partnership with the community and by fostering a safe and compassionate learning environment.
Overview of Carlos Rosario PCS

• Currently serving 2,200 diverse students through a holistic, three pronged model:

  • Foundational Skills and Literacy
    • Basic Literacy
    • ESL
    • GED
    • Citizenship
    • Computer Literacy

  • Workforce Development Training
    • Culinary Arts and Servsafe
    • Computer Support Specialist (CSS)
    • Nurse Aide Training

  • Comprehensive Supportive Service
What is a Charter School?

- Publicly funded autonomous school, which has greater autonomy in exchange for greater accountability
- Federal charter school law passed
- Each state elects whether to adopt a state level law to allow charter schools
(14) Program of education. -- A public charter school shall provide a program of education which shall include one or more of the following:

(A) Preschool;

(B) Prekindergarten;

(C) Any grade or grades from kindergarten through grade 12;

(D) Residential education; or

(E) Adult, community, continuing, and vocational education programs.
School Diversity

- Spanish: 70%
- Amharic: 18%
- French: 3%
- Tigrinya: 3%
- Chinese: 3%
- Arabic: 2%
- Other: 2%
- Others: 1.50%
PIAAC & CR

Core of our instruction.
Improving reading and writing skills to gain accuracy and fluency in English

Embedded in ESL Instruction.
Integrating digital literacy through project-based instruction

Embedded in ESL Life Skills Instruction

Literacy

PS-TRE

Numeracy

PIAAC
<table>
<thead>
<tr>
<th>Literacy</th>
<th>ESL 1</th>
<th>ESL 2</th>
<th>ESL 3</th>
<th>ESL 4</th>
<th>ESL 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Identify parts of the human body</td>
<td>• Identify parts of the human body</td>
<td>• Identify common ailments and possible remedies</td>
<td>• Identify and categorize parts of the human body</td>
<td>• Report an emergency and request assistance</td>
<td>• Fill out a medical history form</td>
</tr>
<tr>
<td>• Make a medical appointment</td>
<td>• Identify common ailments and possible remedies</td>
<td>• Describe common symptoms and illnesses</td>
<td>• Make a medical appointment</td>
<td>• Read and state directions from a medicine label and identify the dose, side effects and warnings.</td>
<td>• Interpret information about childhood immunizations</td>
</tr>
<tr>
<td>• Report an emergency to 911</td>
<td>• Report an emergency to 911</td>
<td>• Make a medical appointment</td>
<td>• Complete a medical history form</td>
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<td></td>
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<tr>
<td>• Interpret information on a medicine label</td>
<td></td>
<td>• Respond to a doctor’s questions and directions during an exam</td>
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Healthcare Career Pathway

Beginning literacy → English as a Second Language (ESL) Levels 1-3 → ESL for Health Level 4-5 → ESL/Certified Nurse Assistant Level 6-7 → Certified Nurse Assistant Level 8
ESL For Health (L4 and L5)

• Topics are health focused
  – Nutrition, medicine, emergencies, exercise
  – CPR & First Aid certifications
  – How to live healthy lives in the U.S.
  – Introduction to careers in healthcare

• Prepares students for workforce courses such as Certified Nurse Assistant or Medical Assistant.
Language skills through lens of Health
Level 4 Health Students
L4 Health – Content Curriculum Framework

Anatomy
- Parts of the body
- Muscles
- Organs
- Skeletal system

Healthcare
- Interacting with doctors
- Local healthcare resources
- Reporting emergencies
- Navigating healthcare systems

Healthy Living
- Weight management
- Exercise
- Stress
- Unhealthy habits

Ailments & Medicine
- Medicine labels
- Ailments

Emergency Preparedness
- CPR/AED
- Preventing emergencies

Nutrition
- Food groups
- Nutrients
- Healthy food choices

Career Exploration
- Exploring jobs in healthcare
ESL Certified Nurse Aide Training

• Instruction is geared toward English language learners

• Team Teaching – one ESL instructor and one RN instructor

• Designed for students who want to prepare for a career in the health industry

• Prepares students to become Certified Nurse Aides
### Pass Rates: ESL 4 & 5 Health

<table>
<thead>
<tr>
<th></th>
<th>SY 2013-2014</th>
<th>Fall 2014</th>
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</thead>
<tbody>
<tr>
<td>Level 4 Health</td>
<td>87.6%</td>
<td>88.2%</td>
</tr>
<tr>
<td>Level 5 Health</td>
<td>80%</td>
<td>90%</td>
</tr>
</tbody>
</table>

### Pass Rates: Nurse Aide Training

<table>
<thead>
<tr>
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<th>2014-2015 (Pilot)</th>
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<tbody>
<tr>
<td>Level 6/NAT</td>
<td>Anticipated 87%</td>
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<thead>
<tr>
<th></th>
<th>SY 2013-2014</th>
<th>Fall 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAT</td>
<td>91%</td>
<td>86%</td>
</tr>
</tbody>
</table>
Student Success Story

- **Name:** Jackson San Miguel
- **Country:** Cuba
- **Native Language:** Spanish
- **Completed:** ESL Levels 1-3
- **Current Class:** Level 4 Health
- **Occupation:** Group fitness instructor & Health Promoter at Clinica del Puebla, educating the community about diabetes prevention
Student Success Story

- Name: Tamrat Hadgu
- Country: Ethiopia
- Native Language: Amharic
- Completed: ESL 5
- Current Class: Level 6/NAT
- Occupation: Recently hired as a caregiver at Home Instead Senior Care
It is very important to learn English and health to find a better job. I like to help people and I hope to work in the area of health. I learn English and health at the same time. This class helps me understand my body and how to speak with a doctor. Now I don’t drink soda. I mix whole grains in my eat habit. Drink more water and eat vegetables. I am responsible for the health of my future children. I am responsible for the health of my kids and my husband. I teach my grandchildren about healthy food. This class is important to my life because it lets me express myself in English with good grammar, teach me about health, nutrition, writing and computer lab also. I learned English and health at the same time. I did the first step to be a nurse assistant. I need to keep going. It helps me to follow my dream to be a nurse.
The Power of Student Voices: Telling the Carlos Rosario School Story

- Featuring student story on website
- Requesting stories and contact information on carlosrosario.org
- Using social media (FB, Twitter, Flickr) to tell student stories and to show vibrant classrooms
- Implementing social media contests to get quotes from students that are used in a variety of outlets including newsletters, annual reports, website, grant reports, etc.
- Including student stories of success in annual report, government testimonies, and grant reports to show impact
- Highlighting successful student and graduates through videos such as Achieving the Dream video and the Story of an Adult Learner
- Featuring student presenters and including classrooms visits during high profile school visits such as Prince Charles of Wales and Councilmember Grosso
- Developing a student ambassador program to ensure selected students are prepared to tell their stories
- Creating physical and digital story board for each campus
  » (School Mission bulletin board at HSC and Stories of Growth PPT at SGC)
Questions & Comments
Thank you!

Esther Prins: esp150@psu.edu

Dan Rafter: dan@spitfirestrategies.com

Allison Kokkoros: akokkoros@carlosrosario.org