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Rethinking Literacy and Numeracy for Today's CTE Workforce



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We're glad to be here!



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What do we mean by foundational skills?

Foundational skills in CTE programs

Numeracy	Literacy
▪ Precise measurements ▪ Dosage amounts ▪ Interpreting data ▪ Estimating costs or materials	▪ Technical instruction manuals ▪ Safety information ▪ Communicating information across teams ▪ Evaluating information

Foundational skills in CTE programs

- Mentimeter Poll: <https://www.menti.com/alp558ignyk6>
- Where does responsibility for foundational skills support primarily sit in your institution?

Bottom line: Foundational skills may be everybody's responsibility conceptually, while belonging to no one operationally.

The need for investment



By 2040, 75 percent of adults in the U.S. labor force will have college degrees or other credentials of value leading to economic prosperity.

Investments

- Community and technical colleges as important hubs for adult education
- Aligning math pathways to career success
- Employer-supported foundational skills training



Project Overview

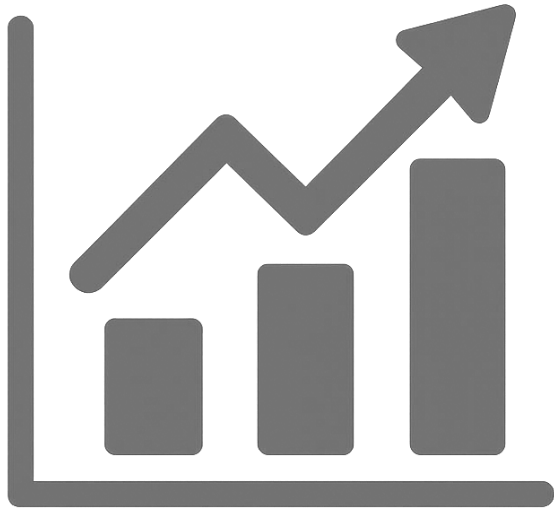
Project Goals

- Understand the landscape of efforts to build foundational literacy and numeracy for workforce success, including models, strategies, policies, funding, outcomes and evidence.
- Focus is on models and interventions offered by or in partnership with community colleges.
- Elevate how foundational literacy and numeracy contribute to economic prosperity.

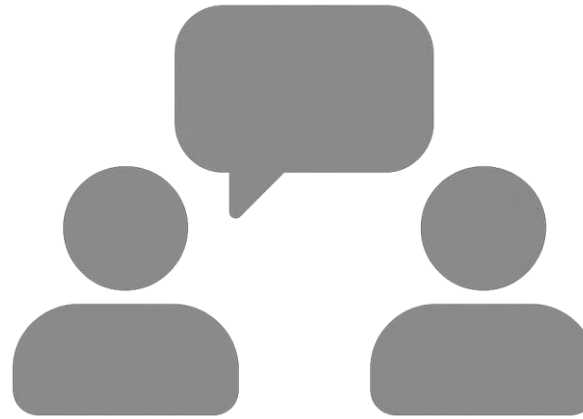
Guiding Research Questions

- What is the importance of foundational literacy and numeracy skills for success in workforce programs and careers?
- What is the role of community colleges and their partners in generating positive outcomes for adult learners?
- Where could a coordinated strategy and additional investments in community college programs push the literacy and numeracy field forward?

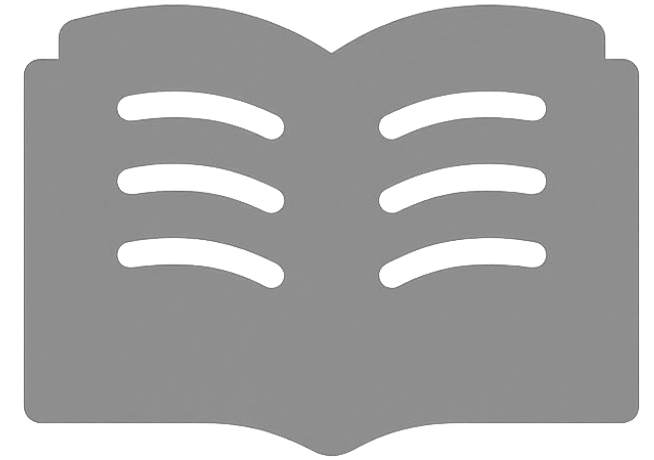
Data Sources Used in This Presentation



- Department of Labor's Occupational Information Network (O*NET) Data
- Bureau of Labor Statistics Occupational Employment and Wage Statistics (OEWS)
- Bureau of Labor Statistics Employment Projections and Skills Data
- Job Quality Schema – Multiple Sources



- Conducted 13 total interviews with state administrators, community college practitioners, and intermediaries/employer-driven initiatives
- Engaged an expert advisory group



- Literature review
- Internet search

Data Insights

Findings from the Literature: Documenting the Problem



Declines in
literacy and
numeracy
worldwide

Widening
gaps in
foundational
skills

Increased
need for
digital skills

Lack of
foundational
literacy as a
barrier to
accessing
jobs



US Adults show low levels of foundational skills

- 28 percent of US adults scored “low” (at or below level 1 of 5) in literacy
- 34 percent of adults scored “low” in numeracy
- Literacy and numeracy levels have declined in recent years
- The gap between high- and low-skilled adults in the US is among the widest globally

Source: Findings from the Program for the International Assessment of Adult Competencies (PIAAC) survey ([NCES 2024](#))

Defining Literacy and Numeracy with O*NET Skills

- Levels are average ratings that indicate what degree of the skill or ability is needed to perform the occupation (0-7)
- For each occupation, an average level of skills and abilities:
 - Literacy: written expression, written comprehension (abilities) and reading comprehension and writing (skills)
 - Numeracy: Mathematical Reasoning, Number facility (abilities) and Mathematics (skills)

Example Levels

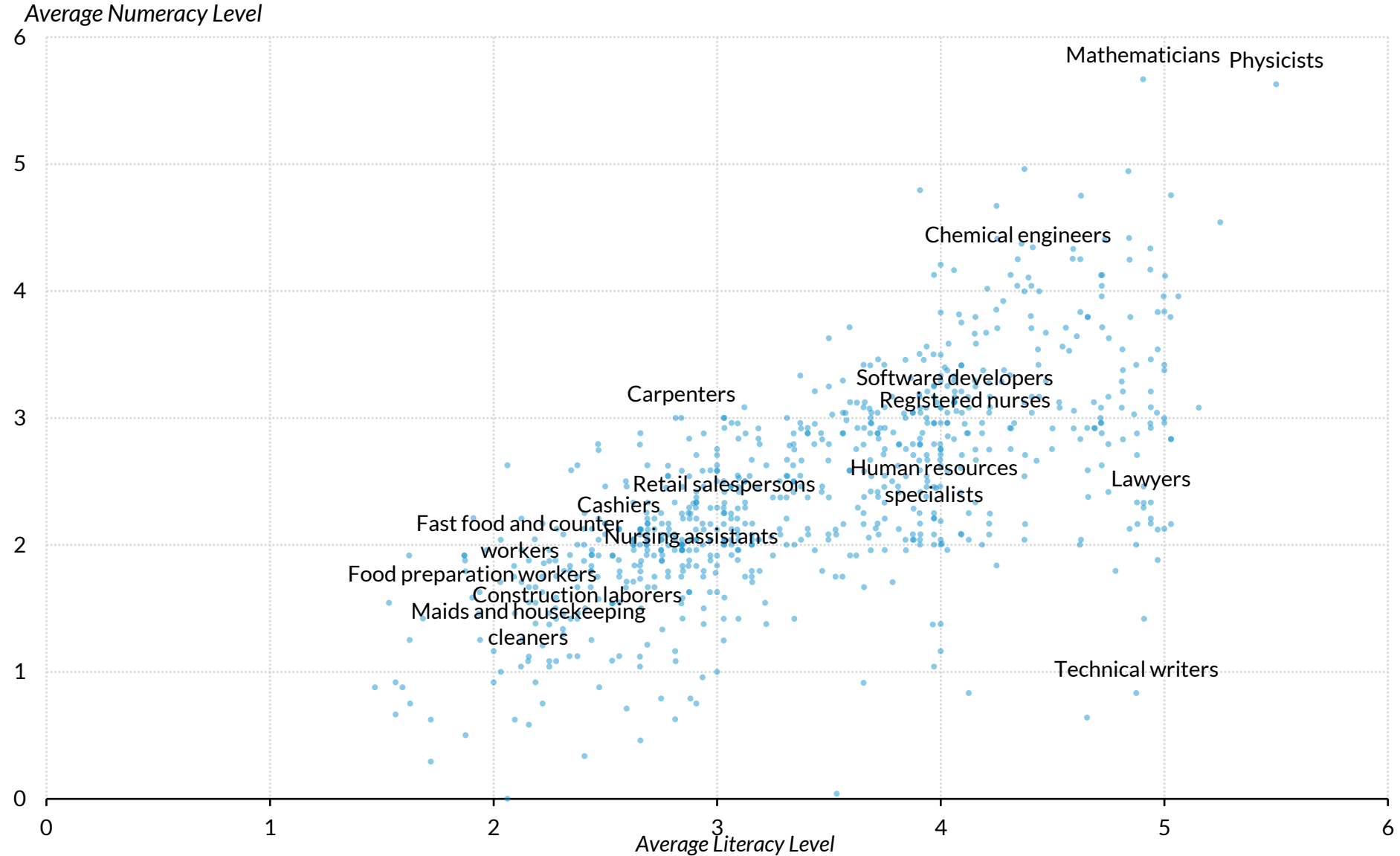
- Scores are ranked 0-7 in terms of level
- Average literacy score across all occupations: 3.3
 - Min: 1.47
 - Max: 5.5
- Average numeracy score across all occupations: 2.4
 - Min: 0
 - Max: 5.7
- Level 6 examples include reading a scientific journal, writing a novel, developing a mathematical model to resolve an engineering problem

O*NET Level Anchors

Skill/Ability	Level	Anchor Point
Written Comprehension	2	Understand signs on the highway
Written Expression	1	Write a note to remind someone to take food out of the freezer
Reading Comprehension	2	Read step-by-step instructions for completing a form
Writing	2	Write down a guest's order at a restaurant
Mathematical Reasoning	1	Determine how much 20 oranges will cost when they are priced at 5 for 4 dollars
Number Facility	1	Add 2 and 7
Mathematics	2	Count the amount of change to be given to a customer

Source: O*NET Level Anchors, <https://www.onetcenter.org/database.html#overview>

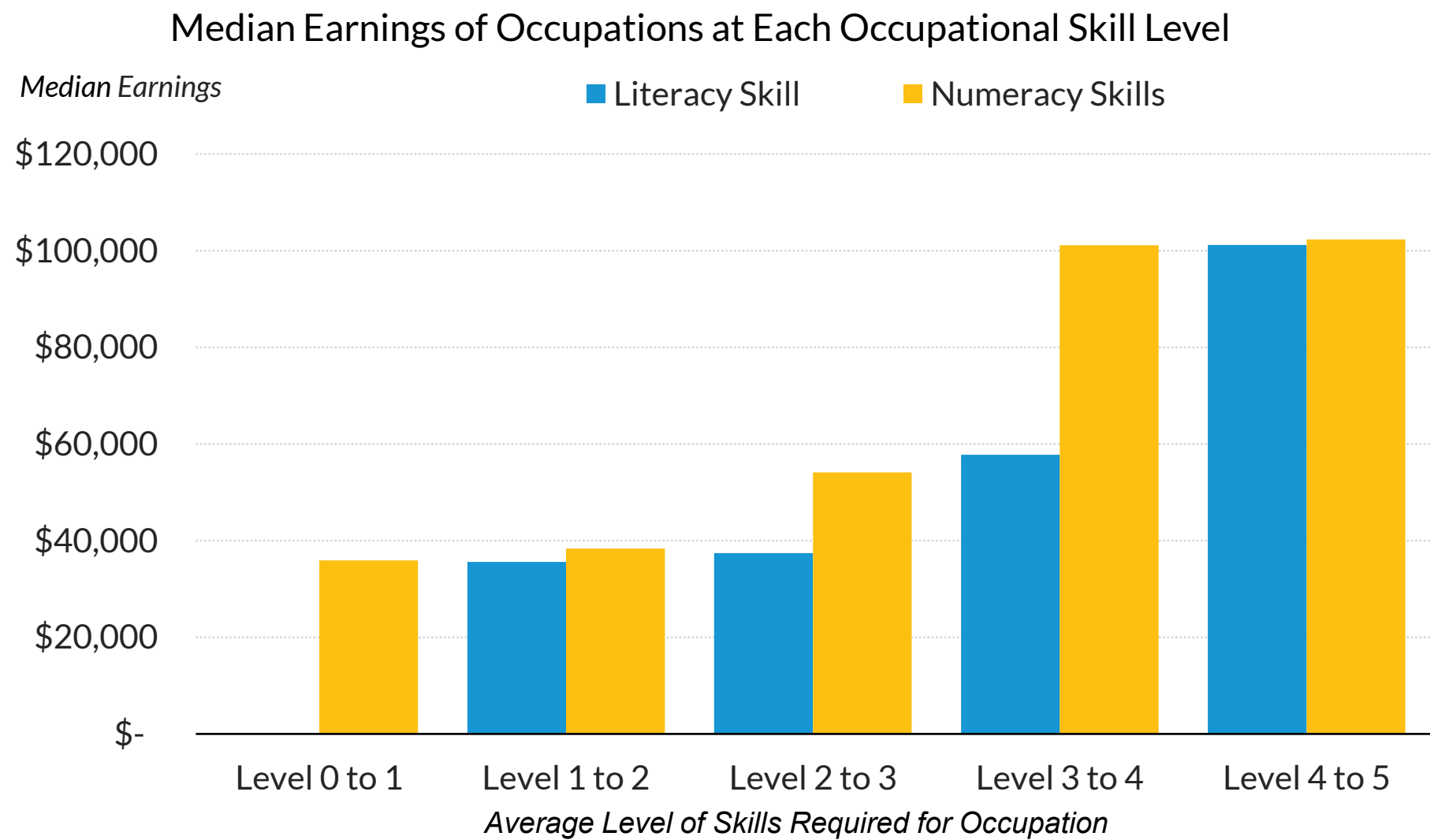
Average Skills Needed by Occupation



Source: O*NET 30.2 Database. February 2026 release.

Notes: N = 765 occupations. Each dot represents one occupation. Labels show a few example occupations.

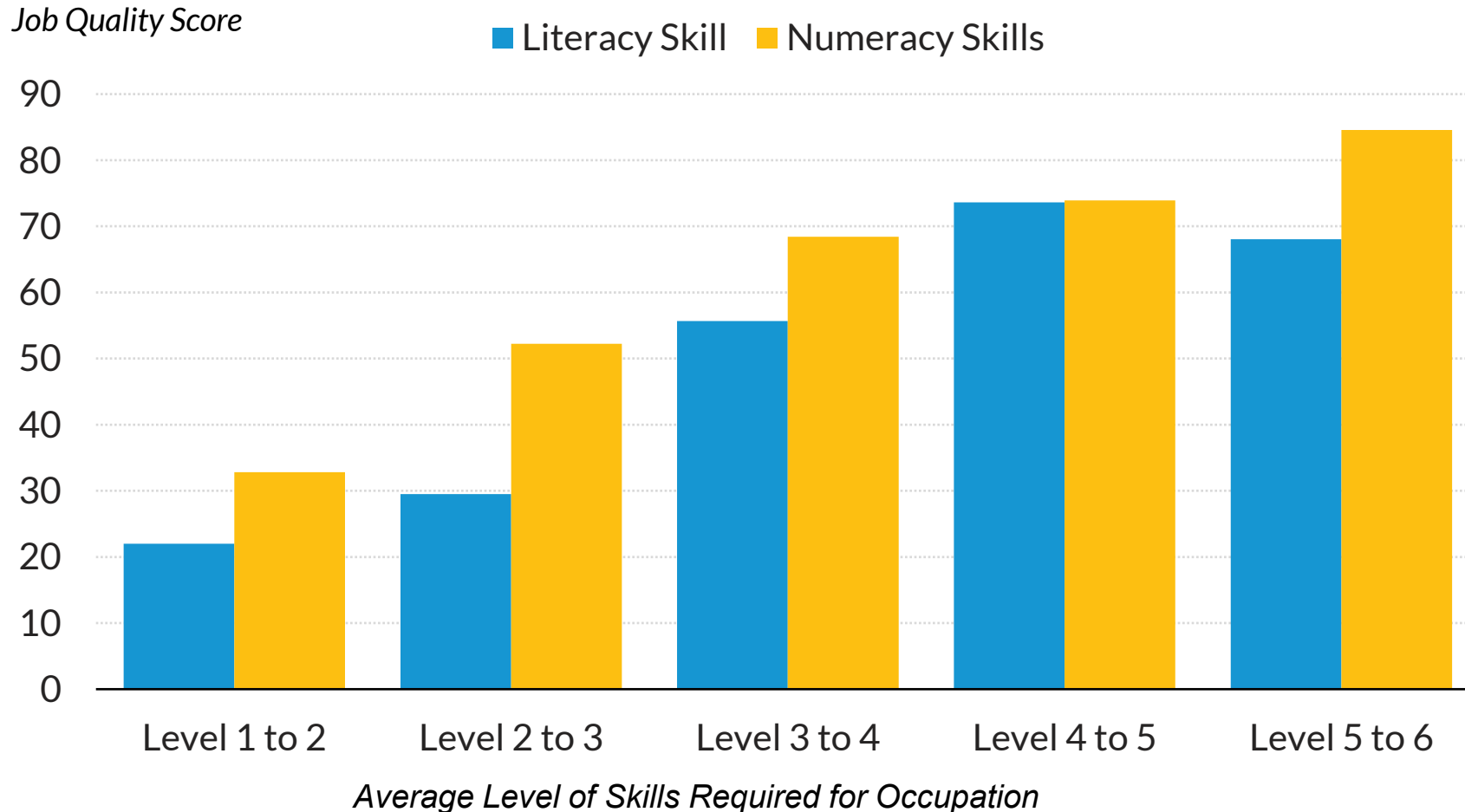
Median Earnings Increase with Skill Level



Source: O*NET, OEWS, weighted by total employment, N=765 occupations

Job Quality Scores Increase with Skill Level

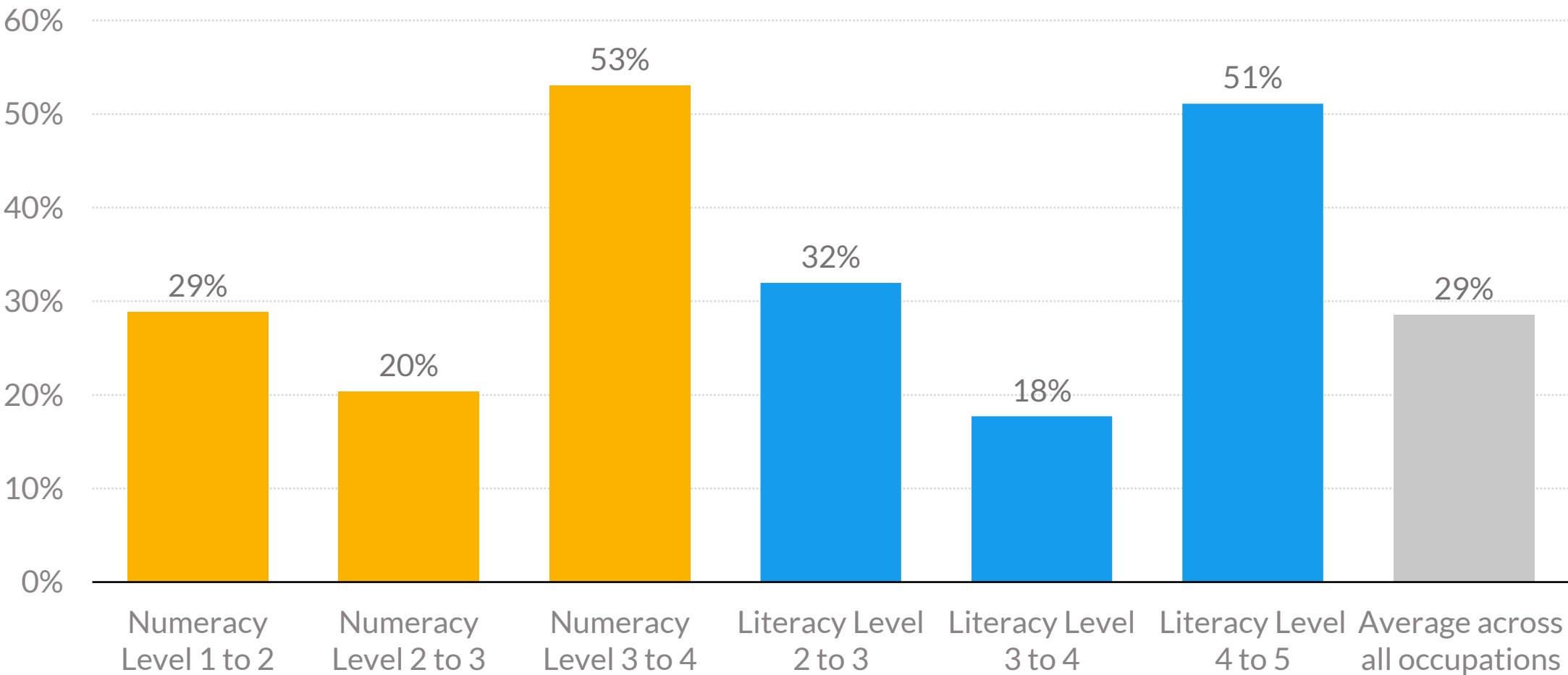
Job Quality Scores (0-100) of Occupations at Each Occupational Skill Level



Source: O*NET, OEWS, Urban Institute job quality schema, weighted by total employment, N=765 occupations

High Growth Occupations are above and below average skill levels

Percent of occupations with projected high growth from 2024 to 2034



Source: O*NET, OEWS, Urban Institute job quality schema, weighted by total employment, N=765 occupations

Instructional Approaches and Promising Practices

A Range of Approaches to Meet Learners Where They Are

- Pre-matriculation, corequisite, devel educ
- Integrated Education & Training (IET)
- HS equiv. (GED, HiSET)
- English Lang. Learning

Programs



- Enrolled or admitted college students
- Immigrants seeking citizenship, refugees
- Inmates in or leaving prison or jail
- Incumbent workers

Learners



- Campus
- Workplace
- Libraries
- Jails/prisons
- Community-based organizations
- Hybrid and online

Locations



Integrating Supports, Careers, and Digital Skills

Centering Adult Learners

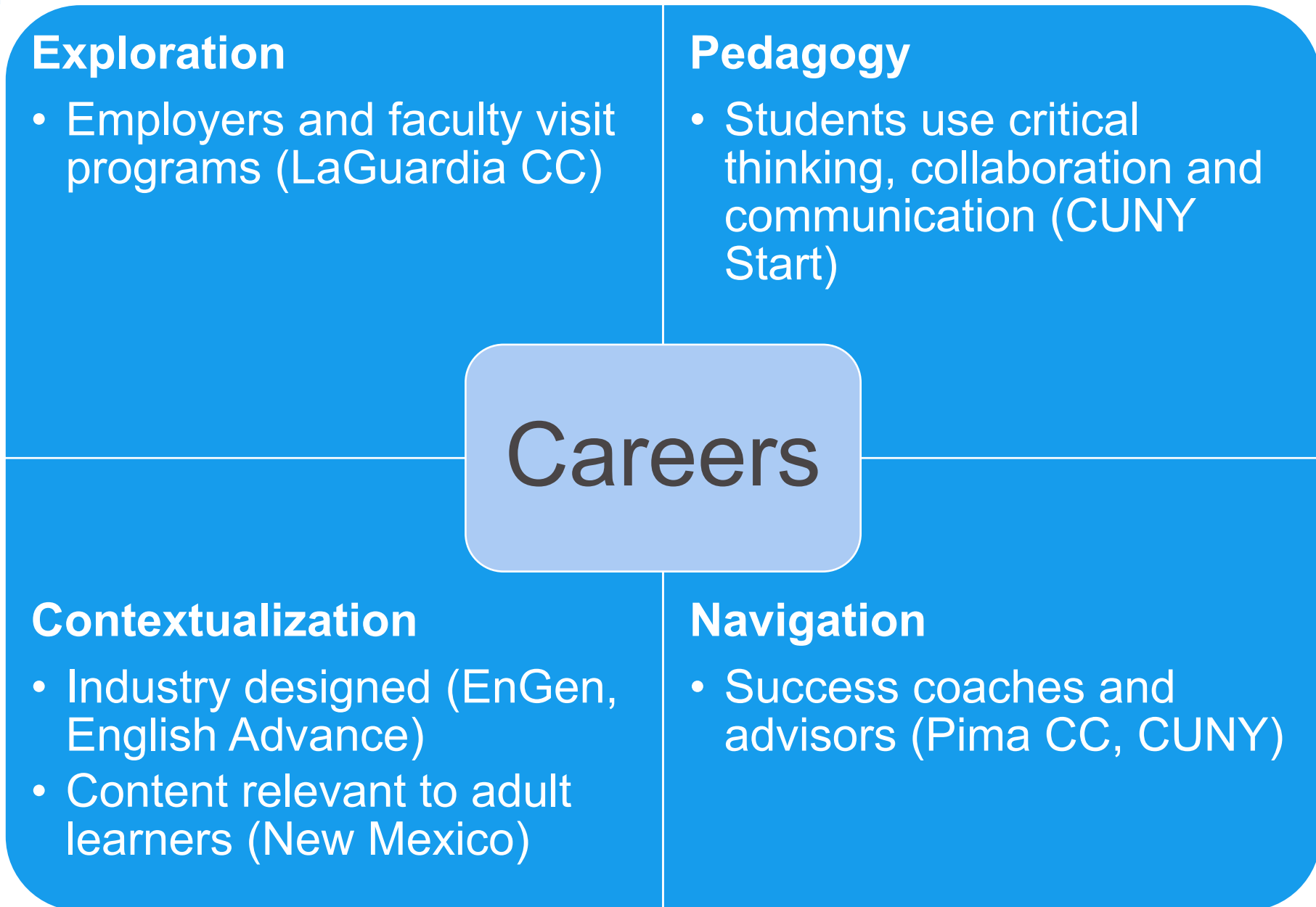
Promising Practice	Why It Matters
Contextualizing instruction around careers and real-world applications	Helps learners understand the relevance of literacy and numeracy skills and connect learning to employment goals
Integrating foundational skills with workforce training	Reduces the distance between skill development and labor market advancement
Providing clear educational and career pathways	Helps learners transition from adult education into credentials, college programs, and employment
Embedding digital skills across instruction	Reflects the increasing role of technology across occupations and education
Building partnerships with employers and community organizations	Strengthens labor market alignment and expands access to supportive services

Source: Authors' synthesis of literature, interviews, and advisory group discussions

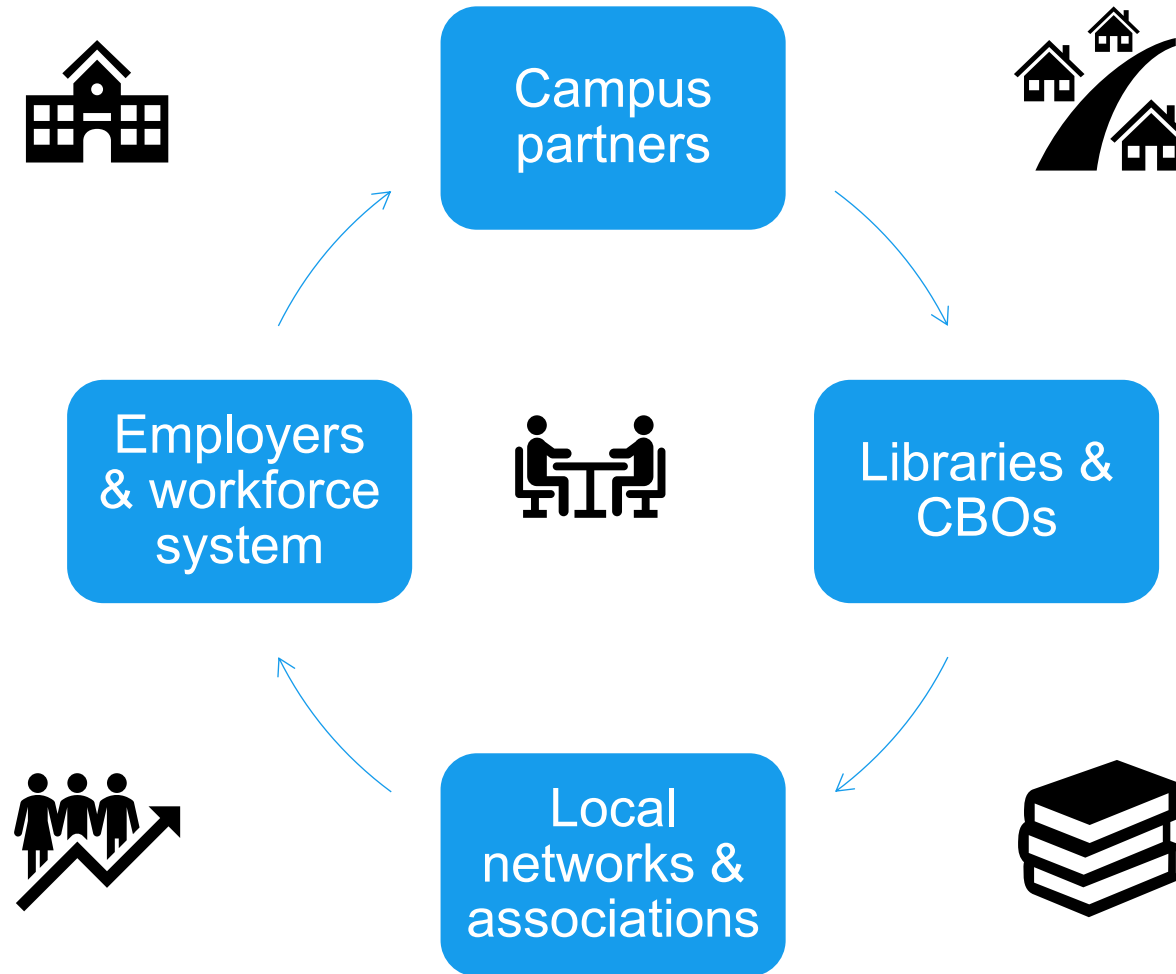
Centering Adult Learners

Promising Practice	Why It Matters
Recognizing learner assets, including multilingualism and prior work experience	Builds engagement and supports strengths-based program design
Offering navigation, advising, and coaching	Helps learners manage complex transitions and persist through programs
Providing wraparound supports	Addresses transportation, childcare, financial, and other barriers that affect persistence
Using flexible delivery models	Accommodates working adults and learners with competing responsibilities

Source: Authors' synthesis of literature, interviews, and advisory group discussions



Partnerships are Important for Facilitating Access, Support and Alignment with Careers



Models and Approaches Should Build on What We Know About What Works

- **Integrated education and training models (IETs)** have evidence of effectiveness for improving credit accumulation and credential completion
 - Evidence is mixed on increasing earnings.
- **Contextualization** of the curriculum to the workplace/careers is key for success
 - Opportunities to expand contextualization of ESOL programs for the workplace.
- Opportunities to create **stronger connections to employers**
 - How can employer intermediaries play a role?
- **Wraparound supports** like childcare, transportation, and advising promote persistence.
- **Important to build on existing evidence and best practices while continuing to expand and improve these models**

Opportunities to Support Workers to Advance Along Career Pathways

- **Incumbent worker training** and upgrading models offer opportunities to reach more learners and help them advance
- **Healthcare** is a sector with significant opportunities for investment in literacy and numeracy upskilling, especially given workforce shortages
- English Advance/Engen are examples of the importance of **employer-based models** that are flexible and designed to meet different industry needs
 - Community colleges are critical partners (teaching classes on campus, remotely or at the worksite).
 - Community colleges serve an important role bringing adult learners to college campuses and connecting them with careers for further advancement.

Instruction is at the Center of Effective Models

- **Developing the skills of educators and providing ongoing support**

- Training for CUNY Start involves instructors teaching for a semester with a lead teacher before leading their own classes.
- English Advance hosts a community of practice for instructors.
- ProLiteracy supports 7000 adult education/literacy programs.

- **Statewide efforts to provide professional development to educators**

- Illinois provides training and support for educators, coordinators and administrators.
- New Mexico hosts IET Institute to build instructor skills.
- Michigan provides support to educators around the science of reading.

Discussion

Questions & Discussion

- What would help advance this work in your institution?
- What are some promising practices you've seen?
- What are the greatest areas of opportunity right now?
- What are the barriers practitioners face in scaling or implementing effective models?
- Who should be engaged in efforts to identify solutions and build the field?
- What is missing? What do we need to investigate further?

Thank you!

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