

Integrating Digital Literacy and Problem Solving into Instruction

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Wyoming Adult Education 2019 Summer Institute
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Objectives and Overview

By the end of the workshop, participants should be able to:

- Explain why digital literacy and problem solving is important for adult learners
- Identify ways to support students' digital access
- Adapt lesson ideas that improve student digital literacy and problem solving skills

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Introductions



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Padlet: Introductions

- padlet.com/gastoneducational/Wyoming



- Type your name, your role in Adult Ed, and name of your program.

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Think about your students ...

- Estimate the percentage of your students who know the location of their library?
- Estimate the percentage of your students who know that their library has computers available to use?
- Estimate the percentage of your students who own a smartphone?
- Estimate the percentage of your students who have broadband access and use a desktop or laptop computer at home?

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Icebreaker Activity

Can you name a famous person who was born on this day in history?

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Icebreaker Activity

- How did you find your answer?
- What type of application is that?
- What browser did you use?
- What keywords or search terms did you use?
- On which website did you find your answer?
- How do you know that site is a valid source?
- When we asked you our initial question, how many of you sat there and thought, 'There is no possible way I can answer that'?

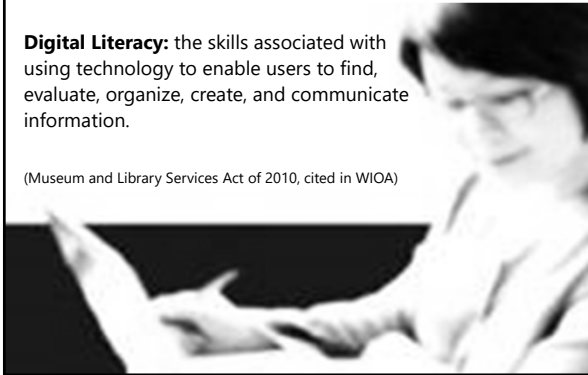
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Digital Literacy and Problem Solving

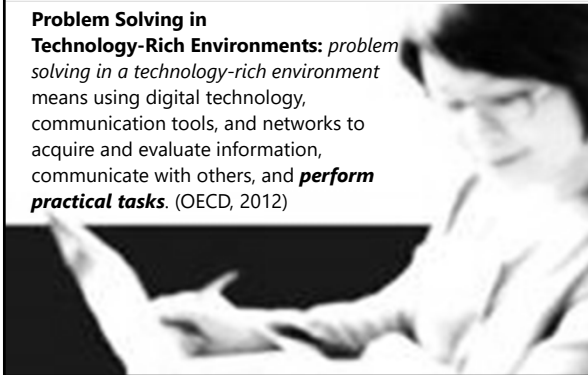
Digital Literacy: the skills associated with using technology to enable users to find, evaluate, organize, create, and communicate information.

(Museum and Library Services Act of 2010, cited in WIOA)



Digital Literacy and Problem Solving

Problem Solving in Technology-Rich Environments: *problem solving in a technology-rich environment* means using digital technology, communication tools, and networks to acquire and evaluate information, communicate with others, and **perform practical tasks**. (OECD, 2012)



32 Million U.S. Adults Are Not Digitally Literate

16%

U.S. adults who do not have sufficient comfort or competence with a computer to **find a recipe, make a retail purchase, or file taxes online.**

SOURCE: U.S. Department of Education, National Center for Education Statistics, Organization for Economic Cooperation and Development (OECD), Program for the International Assessment of Adult Competencies (PIAAC), 2012. AMERICAN INSTITUTES FOR RESEARCH | AIR.ORG

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Engaging with Text

2/10 **ADULTS IN THE U.S.**

are unlikely to find the name

of a particular Congressperson within a summary information sheet that lists: the Congressional district, name of the district's representative, the year and place of their birth. A recent international survey puts the United States behind 14 of 22 other countries in similar literacy tasks.

AIR
AMERICAN INSTITUTES FOR RESEARCH

PIAACGATEWAY.COM

Source: U.S. Department of Education, National Center for Education Statistics, U.S. Program for the International Assessment of Adult Competencies (PIAAC), 2012/2014; Organization for Economic Cooperation and Development, Program for the International Assessment of Adult Competencies (PIAAC), 2012.

Working with Numbers

3/10 **ADULTS IN THE U.S.**

are unlikely to be able to calculate

the total cost of a daily car rental when provided with: miles driven that day, cost per day, and the cost per mile driven. In a recent international survey, more U.S. adults performed at the bottom two levels of numeric competency than 18 of 22 other participating countries, including Canada, England, Germany, and Japan.

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AMERICAN INSTITUTES FOR RESEARCH

PIAACGATEWAY.COM

Source: U.S. Department of Education, National Center for Education Statistics, U.S. Program for the International Assessment of Adult Competencies (PIAAC), 2012/2014; Organization for Economic Cooperation and Development, Program for the International Assessment of Adult Competencies (PIAAC), 2012.

Problem Solving in Digital Environments

3/10  **ADULTS IN THE U.S.**
are likely to have **difficulty**

sorting through emails and organizing them in folders provided for them. In a recent international survey, the United States scored at the bottom of rankings in problem solving in digital environments, behind 17 of 18 other countries, including Austria, Norway, and the Czech Republic.

  PIAACGATEWAY.COM

Source: U.S. Department of Education, National Center for Education Statistics, U.S. Program for the International Assessment of Adult Competencies (PIAAC), 2012/2014; Organization for Economic Cooperation and Development, Program for the International Assessment of Adult Competencies (PIAAC), 2012.

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Integrating Digital Literacy & Problem Solving into Instruction

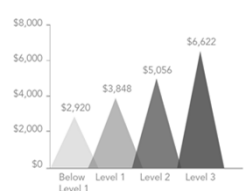
- **Writing 6:** Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.
- **Writing 7:** Conduct short as well as more sustained **research projects based on focused questions, demonstrating understanding** of the subject under investigation.
- **Writing 8:** Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
- **Reading 7:** Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- **Speaking and Listening 2:** Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
- **Speaking and Listening 5:** Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

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Importance of Digital Literacy Skills


- Workforce Innovation and Opportunity Act
 - See the Fact Sheet: [Integrating Technology](#)
- Research on opportunities by digital skill level
 - [Adults, Computers, and Problem Solving: What's the Problem?](#)
- The #HomeworkGap

Average monthly earnings by skill level




Skill Level	Average Monthly Earnings
Below Level 1	\$2,920
Level 1	\$3,848
Level 2	\$5,056
Level 3	\$6,622


www.ChangedTheEquation.org

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ADULTS, COMPUTERS AND PROBLEM SOLVING
WHAT'S THE PROBLEM?
Results from the Survey of Adult Skills




Having good literacy skills is strongly linked with high proficiency in solving problems using digital devices.




Workers who use digital applications, such as e-mail, frequently in their jobs earn 9% more per hour, on average, than workers who are equally proficient in literacy, numeracy and problem solving, have attained similar levels of education and work in similar jobs, but who rarely use them.

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ADULTS, COMPUTERS AND PROBLEM SOLVING
WHAT'S THE PROBLEM?
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Only 1 in 3 adults demonstrated a high level of proficiency in solving problems using digital devices (Level 2 or 3) across participating OECD countries. At those levels, adults can transform information in an e-mail message into a spreadsheet and evaluate search-engine results against a set of criteria, among other complex tasks.



More than 1 in 5 adults in Italy (27%), Korea (25%), Poland (26%), the Slovak Republic (24%) and Spain (23%) reported having no experience in using digital devices or failed the most basic test of digital skills, involving typing, clicking a mouse, dragging and dropping content, and highlighting text.

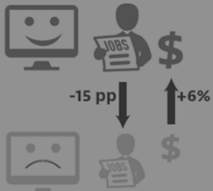


More than 1 in 2 55-65 year-olds in Korea (64%), Poland (53%) and the Slovak Republic (53%) either reported having no experience in using digital devices or failed the most basic test of digital skills, involving typing, clicking a mouse, dragging and dropping content, and highlighting text.



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ADULTS, COMPUTERS AND PROBLEM SOLVING
WHAT'S THE PROBLEM?
Results from the Survey of Adult Skills

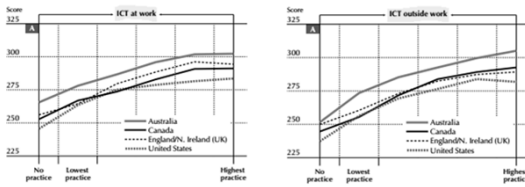


Labour force participation rates among adults who reported having no experience in using digital devices are **15 percentage points lower**, and their **wages are 6% lower**, compared to adults who had basic problem-solving skills using digital devices.

pp = percentage point

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Importance of Access and Use to Skills



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OECD Skills Outlook 2013: First Results from the Survey of Adult Skills 19

Literacy & the Case for Access to Technology

Literacy is enhanced by **digital literacy**.

Digital literacy is improved by **practice**.

Practice is enabled by **digital access**.



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Digital Literacy and Access Needs



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Survey Digital Literacy and Access Needs

https://docs.google.com/document/d/1Da-WrmI58n0ZDTYIGSZw9MftO_poOIln4OV8yFs1eK8/edit

Tinyurl.com/ovntxsv



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Digital Literacy Skill Assessment

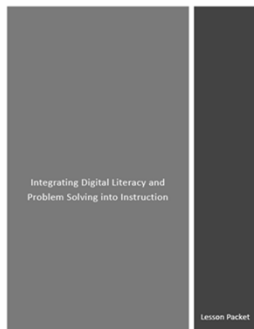
- <https://www.digitalliteracyassessment.org/>



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Lesson Packet



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Assessment and Pre-Teaching

- Broadband
- Data plan
- Hotspot
- Mobile Hotspot
- Modem
- Router
- Wireless
- Wi-Fi
- 4G
- GB (gigabyte)

<https://www.jeopardyapp.com/play/digital-literacy-1>

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Glossary

GLOSSARY

Broadband - high-speed internet connection on computer or mobile device (mobile broadband) that allows users to view videos, etc.

Data - the information (usually text, pictures, audio etc.) that you use on a computer or phone.

Data plan - a monthly subscription to a cellular or other wireless (see wireless) company for the transfer of data such as audio, etc. It can be an unlimited-use plan or based on the actual amount of data used.

Hotspot - an area that has wireless signal for internet available for use, usually public.

Mobile Hotspot - a personal device that creates a small area of Wi-Fi coverage (see Wi-Fi) allowing other nearby Wi-Fi devices to connect to the internet.

Modem - a modem allows you to connect one computer to the internet.

Router - a router helps you to connect one or more computers or devices at a time.

Wireless - a way of getting on the internet without having to use a cable. The information is sent through the air, like with mobile phones.

Wi-Fi - a short-distance wireless communication system for communicating without wires over a computer network. This is can also be used with tablets and smartphones to connect to the internet.

3G - a way that your phone can access the internet by mobile broadband.

4G - newer than 3G mobile. It allows users to get very fast mobile internet.

GB (gigabyte) - With 1GB of data plan you can visit 100 websites or stream 165 videos or send 1500 emails.

For more information
Advanced Tech Terms (<http://techterms.com/>)
Beginner - BBC Website Making the Most of Being Online (<http://www.bbc.co.uk/webwise/16/1602>)

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Framework for the project-based activities

```

graph TD
    A[Introduction] --> B[Task]
    B --> C[Process]
    C --> D[Resources]
    D --> E[Evaluation]
  
```

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Lesson 1: Libraries as one solution to the digital access problem

FINDING COMPUTERS - HANDOUT

INTRODUCTION

In this lesson, you will learn where a person can go to use computers for free. Most communities have places for this. The most common location is your local library. However, not everyone knows about this. Some people do not know where libraries are. People who are new to the area could also have trouble finding the library. Help for Maria.

Maria is new to the area. She works full time and is a single mother. This year, Maria is taking online courses. Her family has a desktop computer. However, her son cannot use the computer at the time. They do not have a laptop or a tablet. Maria needs another computer, but she does not have the money to buy another one. Maria is not able to use the computers at her program.

THE TASK

What is the solution?

Find a library where Maria can use a computer. Then prepare directions for her.

THE PROCESS

1. Read all these instructions and the Resources section.
2. Using the Internet, find a library near your program. Use a search engine or links provided below in the Resources section.
3. Get information from the website about the library. What is the address? When is it open? How many computers are there?
4. Next, you will need the directions. Use Google Maps to get directions. Use the Resources section. Enter your program's address as the starting point and then the new location as the destination.

THE RESOURCES

- Search Engines: Google (<https://www.google.com/>) or Duck Duck Go (<https://duckduckgo.com/>)
- How to Use a Search Engine (<https://help.alternate.com/search/how-to-use>)
- Online Map: Google Maps (<https://www.google.com/maps/>)
- How to Use Google Maps

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Lesson 1: Finding Computers

- How can you find out about computer and WiFi access at your library?
- How do you get to the library?



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Lesson 1: Finding Computers

Walking directions

via St Joseph St and South St 4 min 0.2 mile

Use caution - may involve errors or sections not suited for walking

19 St Joseph St
Jamaica Plain, MA 02130

Head east on St Joseph St toward South St
265 ft

Turn left onto South St
0.1 mi

Turn right onto Sedgwick St
171 ft

Jamaica Plain Branch Library
112 Sedgwick Street, Jamaica Plain, MA 02130

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map shown and you should plan your route accordingly. You may also want to consult a mapmaker regarding your route.

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Additional ideas

- Direct students find their library information via <http://www.lib-web.org/united-states/public-libraries/>
- Instead of a search engine, have students use Everyone On.
- Use the Google Street View Feature.

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Adapting Lesson 1: How would you do it?

What ways can language, math, and digital literacy skills be integrated into a lesson about using libraries?



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Listening to Learners

"Putting Students in the Driver's Seat"



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Kathy's Class

Students:

- Worked on critical thinking skills
- Used Google to search for library locations and bus routes
- Practiced googling for websites and discussed community resources, e.g., students looked up directions/bus routes
- Students used websites and evaluated usefulness

Doug's Class

Students:

- Completed a survey about digital resources.
- Were introduced to the library's computer lab.
- Worked on the Northstar Digital Literacy Assessment.
- Explored library websites, library's home page, found specific information.
- Used Google to look up another library near their home. Then calculated the distances and recorded directions.

Lesson 2: Public Awareness Campaign

PUBLIC AWARENESS CAMPAIGN - HANDOUT

INTRODUCTION

In this lesson, you will learn about special offers for technology that will get you connected to the Internet. [Europe Online](http://www.europeonline.org) (<http://www.europeonline.org>) is an organization working with the government. This non-profit organization offers inexpensive technology and Internet to adult education students. Most students do not know about these offers. The problem is: How can we tell others about this information?

THE TASK

What is the solution? Tell other adult education students about these inexpensive devices and high-speed Internet offers. You will need to:

- Collect more information on the Europe Online website.
- Create a flyer for another communication tool that tells students at your program about Internet offers available.
- Share your product with the whole class and other students.

THE PROCESS


1. Get in a small group. Decide the work each member will do.
2. Read this document, including the evaluation on the next page.
3. Think about your audience and what they need to know. Then go back to [Europe Online](http://www.europeonline.org) (<http://www.europeonline.org>) and collect the information you need for your flyer.
4. Go to the Resources section below and use the example flyer. Create your own or replace information and images.

Show your classmates and your instructor your first draft.

THE RESOURCES

Europe Online: [Europe Online](http://www.europeonline.org) (<http://www.europeonline.org>)

Flyer Template (download and adapt): [Flyer Template](http://www.flyer-template.com/flyer.html) (download and adapt) - [Flyer Template](http://www.flyer-template.com/flyer.html) (download and adapt)

Everyone On

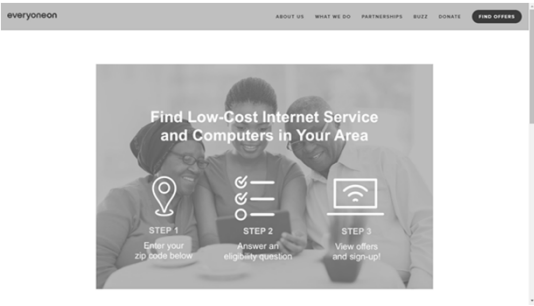
Let's get more devices in students' hands and households.


EveryoneOn.org/adulted

- Prequalifies for the best deal in the local area:
 - Students
 - Teachers
 - Programs
- Wireless internet service for as low as \$10 a month
- Refurbished tablets, laptops, desktops



Everyoneon.org/AdultEd





Internet Offers

Internet Offers

You qualify for 3 out of 3 offers in your zipcode.

Comcast

For more information, call (855) 846-8376.

\$9.95 per month

No installation fee. No modem fee. Data: 5G-Mbps

SIGN UP

Access from ATT

For more information, call (855) 220-5215.

\$10.00 per month

No installation fee. No charge for service 48-72 months. Data: 100GB or 1TB based on type & speeds available.

You may be eligible for this offer if at least one resident in the household participates in the U.S.

SIGN UP

PicstarPeople

For more information, call (855) 354-2552.


As low as \$10 per mo

Three prepaid plans are available: 3 months of service \$40 (\$13.33/mo) 6 months of service \$75 (\$12.50/mo) 12 months of service \$100 (\$8.33/mo) Data: Unlimited

SIGN UP

Data calculator

I Want to...	1GB	12GB
Stream Video	165 videos	1980 videos
Stream Music	570 songs	6840 songs
Download apps, games, and songs	255 downloads	3060 downloads
Post photos and video	2850 posts	34200 posts
Go online	600 webpages	7200 webpages
Send and Receive Email	2500+ emails	30000+ emails
Make phone calls via Skype	1020 minutes	12240 minutes



Device Offers

Device Offers

You qualify for 2 out of 2 offers in your zipcode.

PCs for People

160

Specifications: Windows 7, 8.1 or 10 160GB Hard Drive 4GB RAM OpenOffice Microsoft Office 2010 (optional) Microsoft Security Essentials

Laptop

BUY NOW

PCs for People

110

Specifications: Intel Core i5 Windows 10 160GB Hard Drive 4GB RAM Microsoft Office - No Malwarebytes Anti-Malware Windows Defender Screen, keyboard, mouse

Desktop

BUY NOW

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Training Locations

Digital Literacy Training Locations

We found digital literacy training locations in your area.

PULASKI COUNTY PUBLIC LIBRARY
 121 SOUTH RIVERSIDE DRIVE WINAMAC IN 46996 (Click for map)
 (574) 946-3432

Explore these free online resources!

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Additional Lesson Ideas

- Have more advanced students use a search engine to find organizations or companies (possibly in your area) that offer low-cost hardware and Internet.
- Tap local resources to present in class, such as computer recyclers etc.
- Ask students to review free training web sites and evaluate and select which one(s) they would like to promote at the school.
- Solve another problem: Where is free Wi-Fi? Have students go to a hotspot locator such as Hotspot Haven.
- Solve another problem: Compare hardware offers between two sites.

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One Teacher's Experience

everyoneone.org/adulted

- ✓ connects classroom with real life
- ✓ students solve real problems
- ✓ students get more independent
- ✓ provides an immediate impact: life gets better with free or low-cost internet
- ✓ boosts confidence: students see that they can solve problems they have never dared to touch



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One Teacher's Experience

- "I did not know I could have a very cheap internet. It was easy to get it. My teacher showed me the site, and because my children get free lunch at school, I could have internet for \$10 a month! We are so happy!"

• Patricia Rodriguez

- I needed a computer for my daughter, but I did not know how to buy it. In class, my teacher showed us some information about computers and discounts for internet, and I understood everything. I did not choose the offers site, but I went to a different site and bought a computer for my daughter. I bought her a Surface! I have never thought I could do it on my own!

• Phloia Romain



"Teacher, I need Internet and a computer to do my work in college and to look for a job. Can you help me, please?"

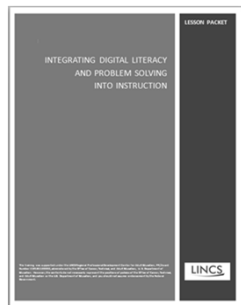
Junie Henry

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Adapting Lesson 2

- Review and then discuss how you would adapt Lesson 2 to your subject area, learners' levels, needs, tech skills.
- Be ready to report back to the whole group.



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Next Steps

- What is one concept or lesson idea do you leave with?
- Are there ways in which you might adapt other aspects?
- Will you proceed independently or get support from computer coordinator?
- Are there ideas for the program itself, such as bulk internet adoption using Everyone On?

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Today's Objectives: Check-in

- Explain why digital literacy and problem solving is important for adult learners
- Identify ways to support students' digital access
- Adapt lesson ideas that improve student digital literacy and problem solving skills

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Questions or Comments



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What is LINC?

[HTTPS://LINC.ED.GOV](https://lincs.ed.gov)

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What is LINC?

WHAT IS LINC?

LINC, the Literacy Information and Communications System, is an initiative of the U.S. Department of Education's Office of Career, Technical, and Adult Education (OCTAE). LINC aims to expand evidence-based practice in the field of adult education. The LINC website provides high-quality, on-demand educational opportunities to practitioners of adult education, so those practitioners can help adult learners successfully transition to postsecondary education and 21st century jobs.

COMMUNITY OF PRACTICE

LEARNING PORTAL

RESOURCE COLLECTION

LEARNER CENTER

LINC FOR STATES

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How Can LINC Help You?

- A **Resource Collection** containing high-quality, evidence-based materials in 16 topic areas critical to the field
- A **Learner Center** that connects adult learners to free online resources to reach life goals
- An online **Community of Practice** where you can share and collaborate with your peers
- A **Learning Portal** where you can engage in self-paced and facilitated professional development courses
- A **Professional Development Center** that provides evidenced-based professional development activities

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New LINCS Quick Reference Guide

Where do I Start?

LINCS COMPONENT	 INSTRUCTORS	 PROGRAM ADMINISTRATORS	 PROFESSIONAL DEVELOPERS	 STATE STAFF	 ADULT LEARNERS
Community	✓	✓	✓		
Learning Portal	✓	✓	✓	✓	
Resource Collection	✓	✓	✓	✓	
State Resources				✓	
Learner Center					✓

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Contact

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National LINCS Trainer

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LINCS Website: <http://lincs.ed.gov/>

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Don't Miss a Beat; Connect with LINCS

- Join the **Community**: <https://community.lincs.ed.gov>
- Access the **Learning Portal**: <http://lincs.ed.gov/courses>
- Search the **Resource Collection**: <http://lincs.ed.gov/collections>
- Explore the **Learner Center**: <https://learner.lincs.ed.gov/>
- Follow the latest updates: @LINCS_ED
- Join our professional group: LINCS_ED
- Watch webinar archives and more: LincsEd



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LINCS Survey



Please complete
the LINCS survey
form.

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