Problem Solving In Technology-Rich Environments

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The Origin of the Term

- The Organisation for Economic Co-operation and Development (OECD) is behind multinational skills assessments like the PISA (Programme for International Student Assessment) and PIAAC (Programme for the International Assessment of Adult Competencies).

- The most recent PIAAC assessment tests cognitive and workplace skills in three domains: literacy, numeracy, and problem solving in technology-rich environments (PS-TRE).

- The U.S. did not do well on any of the three domains in the assessment.
Definition

- Problem solving in technology-rich environments

  - “is using digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks.” (OECD)

  - “focuses on the abilities to solve problems for personal, work and civic purposes by setting up appropriate goals and plans, and accessing and making use of information through computers and computer networks.” (OECD)

The Digital Present

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  - The computing power of technology has grown

My First Classroom Computer
The Digital Present

• Among many people, there is a sense that things have shifted
  • The computing power of technology has grown
  • The influence of communication technology has grown
The Digital Present

- Among many people, there is a sense that things have shifted
  - The computing power of technology has grown
  - The influence of technology has grown
  - Different cultures of technology use have developed
    - Early adopters, DIYers, luddites, retro/nostalgics

“Digital Natives vs. Digital Immigrants”
Identifying Problems

• What does technology allow you to do? (The Affordances)

• What happens when technology is created and used? (The Cost)

• Problem solving in technology-rich environments can then be thought of in two ways –

  • Using the affordances of a technology-rich environment to solve problems that we already had

  • Solving the problems that a technology-rich environment creates or adds to
PIAAC: Key Aspects of PS-TRE

• The existence of the problem is primarily a consequence of the availability of new technologies (e.g., dealing with information overload)

• The solution to the problem requires the use of computer based resources (e.g., dealing with personal finances)

• The problems are related to the handling and maintenance of technology-rich environments themselves (e.g., system updates)

What Can Adult Education Do?

PIAAC Attempts to Assess

• Cognitive Dimensions
  • Setting Goals and Monitoring Progress
  • Planning, Self-organizing
  • Acquiring and Evaluating Information
  • Using Information

• Technology Dimensions
  • Hardware Devices
  • Software Applications
  • Commands, Functions
  • Representations
Moving Beyond Technical Skills

What is it that we want from technology?
What are we willing to trade?

Problem Solving Means Addressing –

• Coordinating Connectivity
• Managing Privacy
• Managing Cognitive Resources

Connecting to the History of Adult Literacy Education

Literacy conceived as a means of dealing with problems by

• Documenting Conditions
• Speaking Your Own Truth
• Organizing for Change

Expressing Our Humanity