

Jens Kaasbøll, Department of Informatics, University of Oslo

IT literacy

Aim

Ability to assess

- descriptions of
- tests of

IT literacy

Core literature

- Mitra et al (2005) Acquisition of computing literacy on shared public computers: children and the "hole in the wall." *Australasian Journal of Educational Technology* 21(3), 407-426

Auxiliary literature

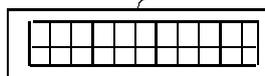
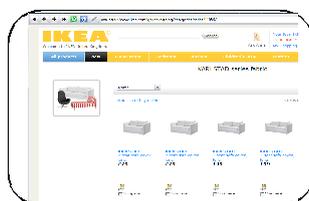
- Committee on IT Literacy (1999) Being Fluent with Information Technology
- C. Lankshear & M. Knobel (2006) Digital Literacy and Digital Literacies. *Digital kompetanse (Nordic Journal of Digital Literacy)* 1(1), 12-24

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Representation of domain

KARLSTAD	KARLSTAD
Armchair	Three-seat sofa with long cover
£239	£339

Domain



Technology



jellyflux.wordpress.com

Tasks in a practice

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Competence for learning about IT

- **Facts**
 - Applications
 - Who knows what
- **Skills**
 - Experimental for trying, error and success
 - Social for making relationships with expertise.
- **Understanding**
 - Usefulness
 - Concepts and principles

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Computer literacy

Computer system

Explicit

Skills

- Computer literacy is the knowledge and ability to use computers and technology efficiently
 - [Wikipedia article](#)
- Dutch found to be most computer literate in world
 - Survey of habits in 17 nations
 - 82 percent of Dutch residents said they used a computer at least occasionally at home or at work
 - 72 percent used the Internet
 - International Herald Tribune

Skills

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Fluency with IT – FITness

Committee on IT Literacy (1999)

- Intellectual capabilities
 - Ability to apply IT in complex and sustained situations
 - To understand the consequences
- Fundamental IT concepts
 - Concepts fundamental to IT and computing
 - The "book learning" of IT
- Contemporary IT skills
 - Ability to use particular and contemporary IT to accomplish information processing tasks
 - Knowing how to use a computer

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The Components of Fluency with Information Technology

Intellectual Capabilities	Information Technology Concepts	Information Technology Skills
1. Engage in sustained reasoning.	1. Computers	1. Setting up a personal computer
2. Manage complexity.	2. Information systems	2. Using basic operating system features
3. Test a solution.	3. Networks	3. Using a word processor to create a text document
4. Manage problems in faulty solutions.	4. Digital representation of information	4. Using a graphics and/or artwork package to create illustrations, slides, or other image-based expressions of ideas
5. Organize and navigate information structures and evaluate information.	5. Information organization	5. Connecting a computer to a network
6. Collaborate.	6. Modeling and abstraction	6. Using the Internet to find information and resources
7. Communicate to other audiences.	7. Algorithmic thinking and programming	7. Using a computer to communicate with others
8. Expect the unexpected.	8. Universality	8. Using a spreadsheet to model simple processes or financial tables
9. Anticipate changing technologies.	9. Limitations of information technology	9. Using a database system to set up and access useful information
10. Think about information technology abstractly.	10. Societal impact of information and information technology	10. Using instructional materials to learn how to use new applications or features

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Intellectual capabilities

2. Manage complexity.
 - A person needs to be able to plan a project, design a solution, integrate the components, respond to unexpected interactions, and diagnose what is needed from each task.
 - Some of the steps of the project may involve some type of computer programming.
5. Organize and navigate information structures and evaluate information
 - Most sustained activities involve the location, evaluation, use, and organization of information.
 - Often searching for and locating information involve other aspects of FITness, including evaluating the validity of information and resolving conflicting accounts of situations.
10. Think about information technology abstractly

A person who effectively determines how to apply information technology ... will reflect on her use of information technology, identifying characteristics and commonalities that cut across technological experiences.

She will transfer the principles of technological solutions from one setting to another.



What kinds of competence?

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Information Technology Concepts

3. Networks
 - Key attributes and aspects of information networks, including their physical structure (messages, packets, switching, routing, addressing, congestion, local area networks (LANs), wide area networks (WANs), bandwidth, latency, point-to-point communication, multicast, broadcast, Ethernet, mobility), and logical structure (client/server, interfaces, layered protocols, standards, network services).
5. Information organization
 - The general concepts of information organization, including forms, structure, classification and indexing, searching and retrieving, assessing information quality, authoring and presentation, and citation.
8. Universality
 - Universality distinguishes computers from other types of machines



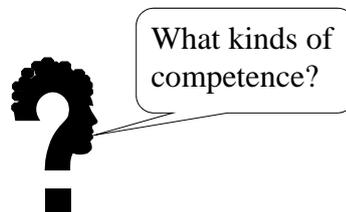
What kinds of competence?

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Information Technology Skills

2. Using basic operating system features
 - the ability to install new software, delete unwanted software, and invoke applications.
3. Using a word processor to create a text document
 - minimal skills in this area include the ability to select fonts, paginate, organize, and edit documents.
 - Integration of image and other data is becoming essential.
 - In the near future, requirements in this area will likely include the creation of Web pages using specialized authoring tools.

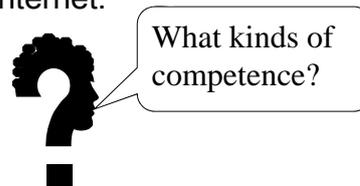


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Minimally invasive education

Mitra et al (2005)

- We put a computer with a fast Internet connection into a wall and let slum children have access to it with no explanation whatsoever
 - You get base level computer literacy almost instantly.
 - By computer literacy, I mean what we adults define as computer literacy:
 - The ability to use the mouse, to point, to drag, to drop, to copy, and to browse the Internet.
 - Sugata Mitra



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The Icon test

- It is assumed that the number of correct descriptions of icons is correlated to the IT literacy level of the person taking the test.
 - Here are some pictures that resemble the pictures on the computer. Look at each picture carefully and describe in few words its function.

	One child saw this icon and wrote "scissors". He is given a score of 0. Later, the same child when tested again wrote, "We can cut pictures with this and move them here and there". He is given a score of 1.
	One child described this icon as "Computer - we get information and songs through this". He is given a score of 1
	One child described this icon as "If we cannot see anything then we should "click" on this "button", to move the page". He is given a score of 1.

- Sugata Mitra

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Digital literacy

Lankshear & Knobel (2006)

- Skills within a practice*
- Typical conceptions
 - «the ability to understand and use information in multiple formats from a wide variety of sources when it is presented via computers» and, particularly, through the medium of the Internet
 - Standardized operationalizations
 - tasks, performances, demonstrations of skills
 - click on all the «output devices» from a list containing items like joystick, monitor, speakers, keyboard, etc.
 - the ability to use technology as a tool to research, organize, evaluate, and communicate information
 - Create: The ability to generate information by adapting, applying, designing or inventing information in ICT environments.
 - Communicate: The ability to communicate information properly in its context of use for ICT environments. This includes the ability to gear electronic information for a particular audience and to communicate knowledge in the appropriate venue.
 - [Educational Testing Service](#)

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Critique

- More than information
 - Communication
- Information implies true/false
 - Communication has more to do with establishing connections than conveying facts
- Each practice has their own literacy
 - A blog
 - A newsgroup
- Ability to express oneself properly in the community
- Ability to become and stay as a member of the community
- Each community its own literacy



What kinds of competence?