IT literacy

Aim

    Ability to construct tests of IT literacy

    Ability to analyse descriptions of IT literacy

    Analyse an IT literacy test in Assignment 5

Core literature

- Textbook Chapter 11

Auxiliary literature

- Committee on IT Literacy (1999) Being Fluent with Information Technology
- Calvani et.al. (2012) [Are young generations in secondary school digitally competent? A study on Italian teenagers](#)

Computer literacy

Computer system

Understanding

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

Digital literacy

Lankshear & Knobel (2006)

a) 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

b) 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.

• <u>Educational Testing Service</u>

Critique

- More than information
  - Communication

- Information implies true/false
  - Communication has more to do with establishing connections than conveying facts

Activity

- Each practice has its 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

Standards

Schools
- IT curricula
- Primary schools in Norway
  - Basic skills
    - Oral expression
    - Written expression
    - Read
    - Calculate
    - <mark>Use digital tools</mark>

  Grunnleggende ferdigheter for grunnskolen

General public – working life in general
- European computer driving license

Specific professions
- Supermarket cashier
- Bank attendant
- Air traffic controller
- Power plant operator

Health informatics literacy

- Skills needed to operate computer systems

- European computer driving license
  - Not addressing the meaning or use of the data
- Characteristics of health data
  - Life-criticality of data
  - Prohibition of deletion of data, even if erroneous
  - Multiple data subjects within one record
    - relatives, clinicians
  - The data subject having access to the record
    - specific qualified exemptions
  - Differential access and disclosure
    - agent-specific duty of care and related need
  - Need for awareness of nature of origins of data
    - Internally and externally captured
  - Long-term large complex records need competent navigation
  - Computerization-driven structured coding of rich narrative data
    - Rigby (2004) Protecting the patient by promoting end-user competence in health informatics systems—moves towards a generic health computer user ''driving license''

Examples of content of a "health supplement" to the European computer driving licence

1. **Applications of computers in health**

Overview of the types of applications:

Patient administration systems

Appointment systems

Electronic patient records

Diagnostic systems

Decision support systems

Knowledge bases and electronic libraries

Telemedicine, telehealth, telecare

Video clips, diagnostic images, etc.

2. **The special nature of health data**

How health data are different:

Definition of "health"

Special intrinsic value, and sensitivity, of health data

Special legal protection

End user——professional and patient

Life critical information

Multi-party information

Interfaces with other agencies

continued

3. Structured recording of health data
4. Ethical and legal underpinning
5. Security
6. Citizens and consumers in health
7. Health professional practice
8. Other health care uses
9. Comparative healthcare systems

School: 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

Assessing competence

- All staff in an organisation
- Course participants
  - Teaching starts at the appropriate level
- Screen the possible course participants
- Employers test the IT competence of job applicants
- Applicants document their competence
  - Completing a certified test
- A school administers an exam in their IT class.
- A trainer evaluates a course – Kirkpatrick Level 2

Minimally invasive education

- 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.

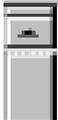   By computer literacy, I mean what we adults define as computer literacy:

    The ability to use the mouse, to point, to drag, to drop, to copy, and to browse the Internet.

Mitra et al (2005) Acquisition of computing literacy on shared public computers: children and the "hole in the wall."

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.

Skills?
Understanding?
Metacognition?

IT?
Information?
Activity fit?

Testing organisations

ETS Educational Testing Service
- TOEFL

Certiport
- Microsoft Specialist

ECDL Foundation
- European Computer Driving Licence
- More than 10 million tests
- All continents

ECDL modules

1. Concepts of Information and Communication Technology
2. Using the Computer and Managing Files
3. Word Processing
4. Spreadsheets
5. Using Databases
6. Presentation
7. Web Browsing and Communication

Separation of IT competence into softwares

- Modules can be taken in random order
- Obstacles for questions relating several applications

What is the similarity between master slides in presentation programs and styles in text processors?

a. They guide the printer.
b. They provide information for the table of contents.
c. They enable coherent formatting of the file.
d. They enable import of slides into word processors.

- Cannot be included
  - Requires that the other module is completed

Targeting understanding IT concepts

- Open

What is a spreadsheet program?

- Closed questions, on relationships between concepts

What is the difference between tables and column layout in a text processor?

a. Tables are imported from a spreadsheet, while column layout is generated within the text processor.

b. Tables are only found in spreadsheets.

c. Column layout is the vertical sequence of cells in a table.

d. Tables are composed of separate cells of text, while column layout means that the text is displayed in sequential, vertical stripes.

Targeting metacognition

- Open, for assessing competence for experimentation

Find out what goes right and wrong when copying from a pdf document and pasting into a text processor.

- Assessing competence for troubleshooting

You experience that the computer did not do what you intended. You repeat it, and this time it worked out. What can the reason be?

a.   The computer regained momentum.

b.   There was a virus the first time.

c.   You made a typing mistake the first time.

d.   The quantum mechanical circuit at the mother board kicked in.

e.   The hard disk crashed.

instant Digital Competence Assessment - iDCA

- 14-18 year olds

Competence areas

- – Technology
- – Cognitive
- – Ethics

Results

- – Italians scored
  - Higher on trouble shooting than on IT concepts
  - Boys higher than girls
- – China
  - No difference between boys and girls

- Download

    Syllabus/achievement requirements → [Digital Competence Assessment](#)

Complete one Level in one of the Areas

1. Which of the subject matter areas did it cover?
    - Information
    - Information technology
    - Activity fit
    - Problem solving (Metacognition)
2. Which level of competence did the questions aim at?
    - Skill
    - Understanding
    - Problem solving
3. Write a question for this module which addresses understanding or problem solving.

Performance of college students, US

Moderate tasks	Correct performance	Rank
Count words	91%	1
Add bullets	88%	2
Highlight text	82%	3
Find and replace text	60%	4
Use the Thesaurus	57%	5
Insert a date	54%	6
Justify a paragraph	47%	7
Enter data in a Word table	33%	8
Insert rows in a table	27%	9
Create a document header	8%	10

Single text flow

Multiple text flows