

## Learning skills with Instructions

- Learning objectives
  1. Distinguish IT skills from other IT competence
  2. Characterize how skills are learnt
  3. Identify qualities of Instructions for skill learning
  4. Being able to make Instructions for Assignment 1
- Literature
  - Textbook chapter 2

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## Skill

- Practical competence
  - Ability to walk, bike, speak, type...
- IT user skill
  - Ability to use IT for a purpose
    - Type an SMS on a numeric keyboard
    - Format a document
    - Summarise columns in spreadsheets
    - Retouch a photo with an image editor
    - Point with the mouse
    - Search the web



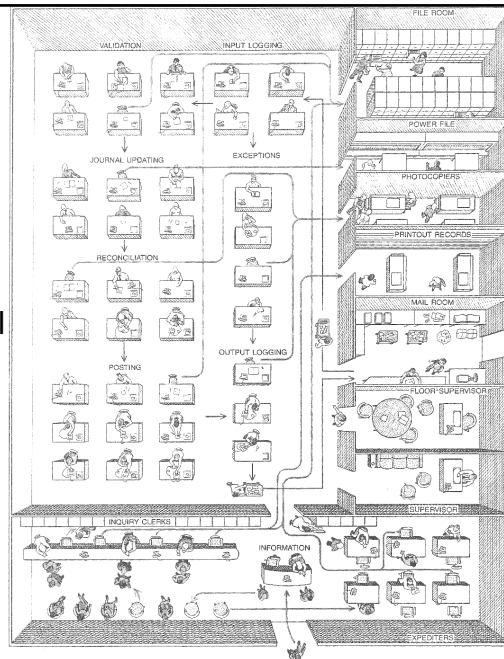
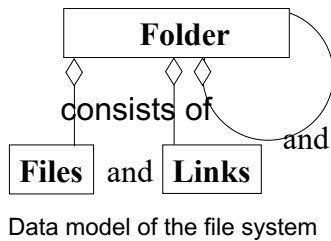
**Know-how**

1. Skills

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## Understanding

- Ability to talk about it  
 "The  $\Sigma$  function can summarise cells in a row or a column."
- Often expressed as a model



Industrial office.  
 Scientific American, 1982, p 127

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### 1. Skills

## Learning

Development of competence that provides a relatively stable change of behaviour

No Learning learning

Discovering the Track Changes functionality  
 → Using it regularly

Finding out how to set up the internet connection  
 → Not being able to repeat it the next time needed

### 2. Learning skills

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## Imitation

**Scaffolds –  
means for learning**

- Observing
  - Others' behaviour
    - Random
    - Teachers' instructions
  - Instruction videos
  - Instruction sheets



Foto: Zentall Akins : Imitation in Animals: Evidence, Function, and Mechanisms.  
<http://www.pigeon.psy.tufts.edu/avc/zentall/>

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**2. Learning skills**

## Repetition


- Practicing the same skill repeatedly
  - Doing it more efficiently
  - Automating it
    - Do it without attention
- Examples
  - Walking
  - Typing




**2. Learning skills**


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## Teacher's instruction



**Transfer of learning**





Fphoto: www.megabyte.net

Learners imitate during course

And forget when back at work

→ Hand out Instruction sheets or videos during training

**2. Learning skills**

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## Module for Understanding

**Uniform layout throughout a document**

Lesson topic

A style is a collection of all formatting instructions for a paragraph.

**Style**

When applying a style to a paragraph, the paragraph's format is changed to the style.

**Apply styles - Microsoft Word 2010**

- To apply a style, click the style in the Styles task pane.
- A new label shows the name of the style.

**Quiz**

A style is a ...

- document which looks good.
- collection of formatting for a document.
- common set of formatting for all paragraphs.
- collection of formatting for a paragraph.
- sequence of characters of the same shape.
- uniformly looking document.

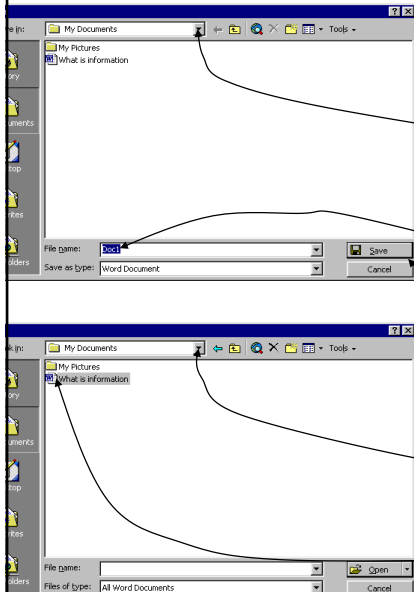
- Introduction
  - Usefulness of the learning objectives. Slide + demo
  - Explanation of new functionality/structure
- Practical hands-on exercises
  - Exercise 1: follow **instructions**
  - Exercises 2 and 3: somewhat different from the instructions
- Summary
  - Multiple choice question on new concept
  - Discuss concept and confront misunderstanding
  - Discuss usefulness

**3. Instructions**



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## An instruction sheet for novices



• Save and open

- 1 Saving. Before quitting a program:
  - 1.1 Click the  button.
  - 1.2 Click the down-arrow in the “Save in” box.
  - 1.3 Type the name you will give the file in the “File name:” box.
  - 1.4 Click the “Save” button
- 2 Opening. The next time you have opened the program and want to work on the same file:
  - 2.1 Click the  button
  - 2.2 Click the down-arrow in the “Search in” box.
  - 2.3 Double-click on the file name.

**3. Instructions**

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## Instruction videos

- [How Can I Put Text & a Formula Into the Same Cell in an Excel Spreadsheet? : Microsoft Excel Tips](#)
  - eHow tech, 2013
- [Uploading And Sharing Files With Google Drive 2018](#)
  - Tested Tricks, 2018

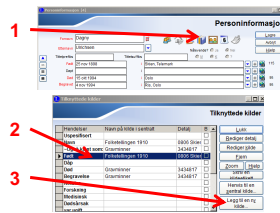
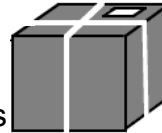
**3. Instructions**

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## Perception — Proximity

- People group stimuli
  - Located closely together
  - Constituting expected shapes
  - Similar
    - Shape
    - Font
    - Colour

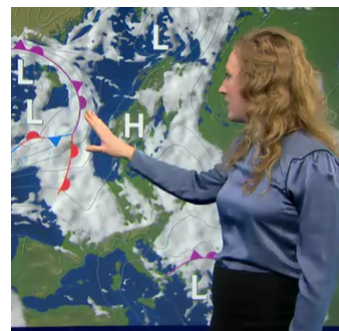


### 3. Instructions

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## Demonstrating with projector

- Point to what you are talking about
- The cursor
  - when moving it



### 3. Instructions

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# Instructions for Imitation

## KISS – Keep It Small and Simple

Guiding the user through a series of operations

→ Sequential

Basis for imitation

→ Recognisable

Users interested in doing, not reading

→ Short

Navigate to the right place

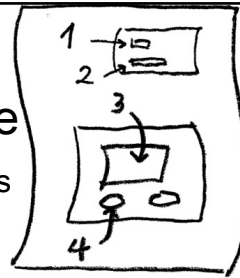
→ Direction

Avoid getting stuck

→ Complete and Feedback

Understandable

→ Users' terminology



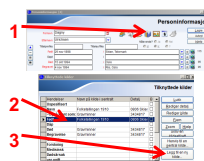
### 3. Instructions

free-best-wallpaper.com

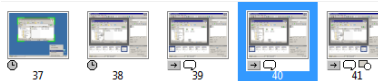
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## Sequential

Numbered sheet



Video



Instructor actions



### 3. Instructions

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## Recognisable

**Screenshot**

**Example**

Continent	Population
Africa	1 022 000 000
Antarctica	1 000
Asia	4 164 000 000
Europe	738 000 000

**Format** Tools Table Help All change

Normal text Times New Roman 11

**Lorem ipsum dolor sit amet, consectetur  
dolore magna aliqua. Ut enim ad minim ve  
ea commodo consequat. Duis e  
voluptate velit esse cillum  
**occaecat** cupidatat non proident, sunt**

- Recognisable format
- Unrecognisable content
- Content does NOT attract attention

**3. Instructions**

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## Short

One page or slide or minute

- **Example**
- **Operations**

Options could have been removed

**Adding map features**

Adding and editing placemarks

[To add a placemark to your map:](#)

1. Create or open a map.
2. Click **Edit** to enter editing mode.
3. Click . Your cursor changes into a placemark icon with an "X" crosshairs. The crosshairs indicate where the placemark will fall.
4. Move the cursor to the appropriate location. If you want to dismiss this placemark, press the Escape key.
5. Click your mouse button to place your placemark. It should bounce into place.
6. **Add a title and description**
7. You can also change the icon for your placemark by clicking the icon in the top right corner of the info window. You can also add your own icon.
8. Click **OK** to save your placemark.

**3. Instructions**



## Complete

- All steps

1. Click where you want to create the table.
2. Click **Table**, and then click **Draw Table**.  
The pointer changes to a pencil.
3. To define the outer table boundaries, draw a rectangle.
4. Draw the column lines and row lines inside the rectangle.

Microsoft Word

- Often forgotten

- Last step of saving, etc

- Last step should allow for feedback

- Visible result
- Checking whether the goal is achieved

### 3. Instructions

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## Directions

- Functionality

- Where to locate it

Functionality

### Draw a table

You can draw a complex table — for example, one that contains cells of different heights or a varying number of columns per row.

1. Click where you want to create the table.
2. Under **Insert**, click **Table**, and then click **Draw Table**.  
The pointer changes to a pencil.

Instructions

3. To define the outer table boundaries, draw a rectangle.
4. Draw the column lines and row lines inside the rectangle.

Microsoft Word

### 3. Instructions

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## Terminology issue

- Designers' terms do not match users'
  - 80% - 90% cases
- Users do not find the button for the functionality
  - The button has an unfamiliar name
  - There are maaaaaaany buttons and menu choices
- Users look up in software documentation
  - Users do not find the place for the functionality
  - The documentation uses an unfamiliar name

### 3. Instructions

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## → Directions should be written by users

- Blogs
- E-mail groups
- Frequently Asked Questions
- Access for general software



- Internal business information systems
  - Links from user interface
  - Intranet search
  - Skills

### 3. Instructions

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## Videos

- Four principles
  - Medium is sequential
  - Screenshot video is recognisable
    - Example should be well known
  - One minute length
    - One example of the operation
    - The learner can replay
  - Complete
    - Include start and stop
- Replace written text with oral
- Only essential mouse movements

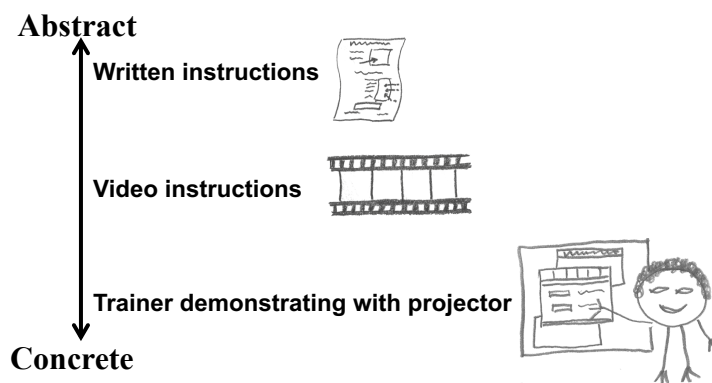


Photo: LIFE free-best-wallpaper.com

### 3. Instructions

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## Instructions in learning


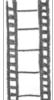


- Some users don't follow instructions
  - Those with poor skills
  - Those who already know a way (or think so)

### 3. Instructions

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## Media for instruction

- A. Learners quickly forget details of computer operation
- B. Reviewing training material is **twice** as successful as searching for help when solving problems
  - Always include instruction sheets  or videos  in training

- C. Imitating a person is easier than imitating anything else
- D. Low skilled users do not follow instructions

Novices or complex tasks

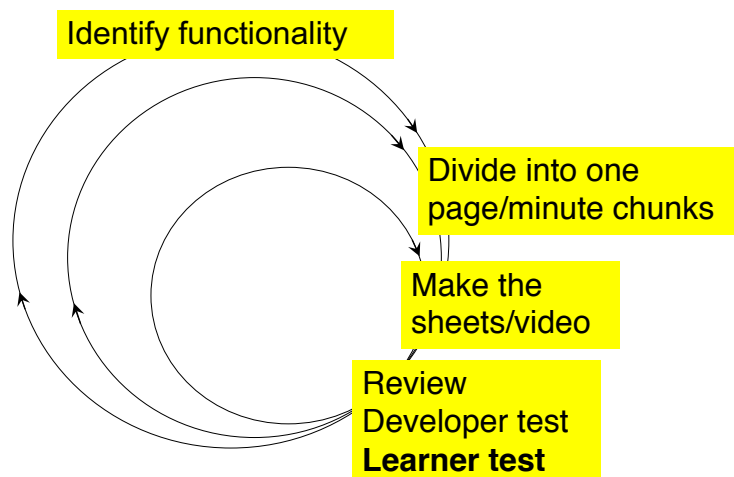
→ Also demonstrate at the projector



### 3. Instructions

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
## Development process



### 4. Making instructions

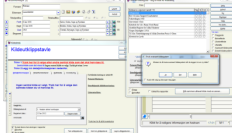

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## Tools for making instruction sheets

- Screen capture
  - Windows
    - Snipping tool 
  - Macintosh
    -  
  - Ubuntu Linux
    - Applications → Accessories → Take Screenshot → Grab
- Media generation
  - Slides
    - Google Presentation
    - Impress
    - PowerPoint
    - Prezi

### 4. Making instructions 25

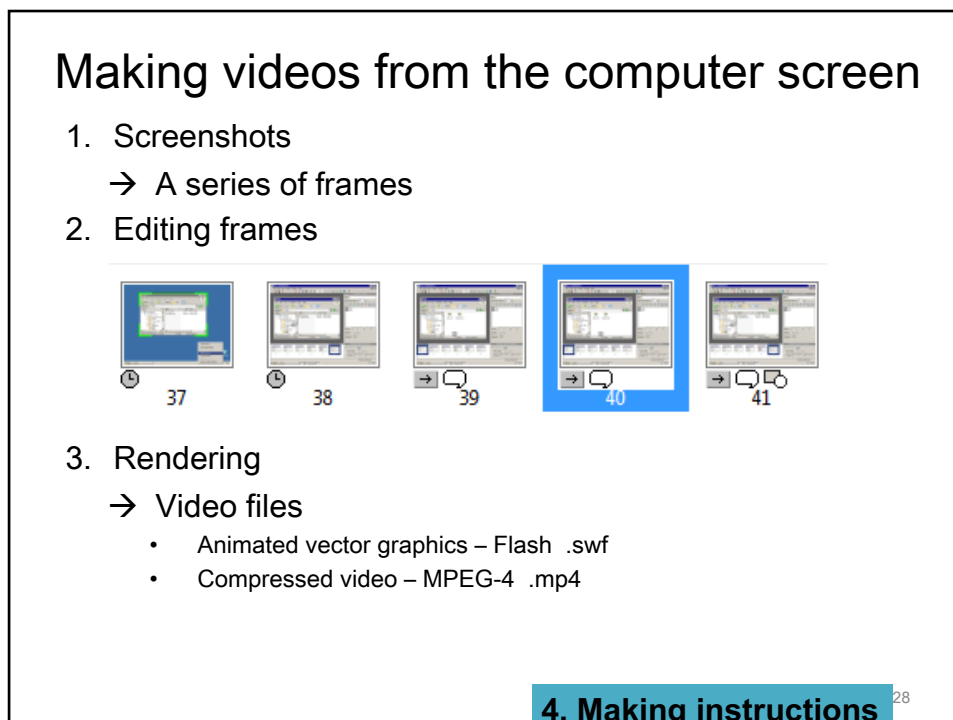
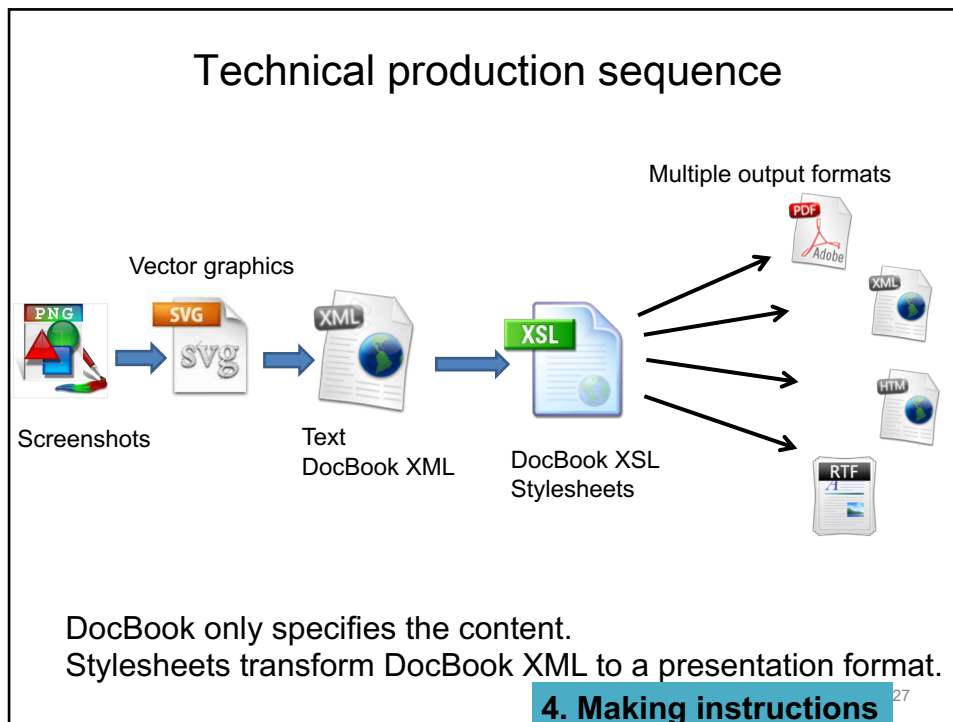
## Professional production of user documentation

- Screenshots
    - Portable Network Graphics format .png 
  - Graphics and text
    - Scalable Vector Graphics format .svg 
      - Adobe Illustrator CSS
      - Inkscape
  - DocBook or another XML storage format .xml
    - Tagged text format
    - Similar to HTML
      - Serna Free
      - emacs
- Basis for generation in any media

```
<TABLE>
<TR><TD>this</TD><TD>is</TD><TD>a</TD></TR>
<TR><TD>simple</TD><TD>table</TD><TD>example</TD></TR>
<TR><TD>with</TD><TD>3</TD><TD>columns</TD></TR>
<TR><TD>and</TD><TD>4</TD><TD>lines</TD></TR>
</TABLE>
```

this	is	a
simple	table	example
with	3	columns

### 4. Making instructions 26





[Download](#)

### 1. Recording

File → New → Choose Screen or Window

Alt/Pause – Switching capture on/off

### 2. Edit frames with Properties, right column

### 3. Project → Render

### Detailed instructions

→ Syllabus/achievement requirements

→ Under the headline Tutorials

## 4. Making instructions <sup>29</sup>

## Learner tests

- Give the learners the instructions
- Observe closely what they do
- Note down when they
  - deviate from the instructions
  - get stuck
- Afterwards
  - Ask them about what happened when they did not follow the instruction
  - Where they got stuck
    - Check the instructions



## 4. Making instructions <sup>30</sup>

**1. Provide users with instruction sheets or videos, also during training.**

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