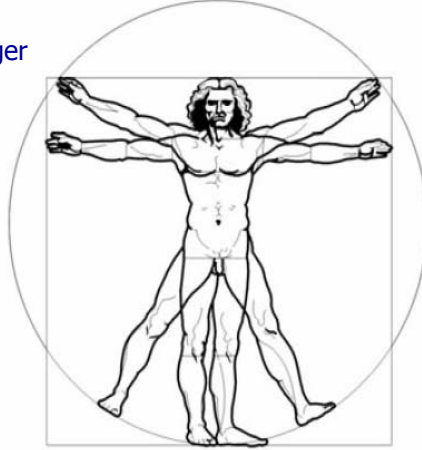


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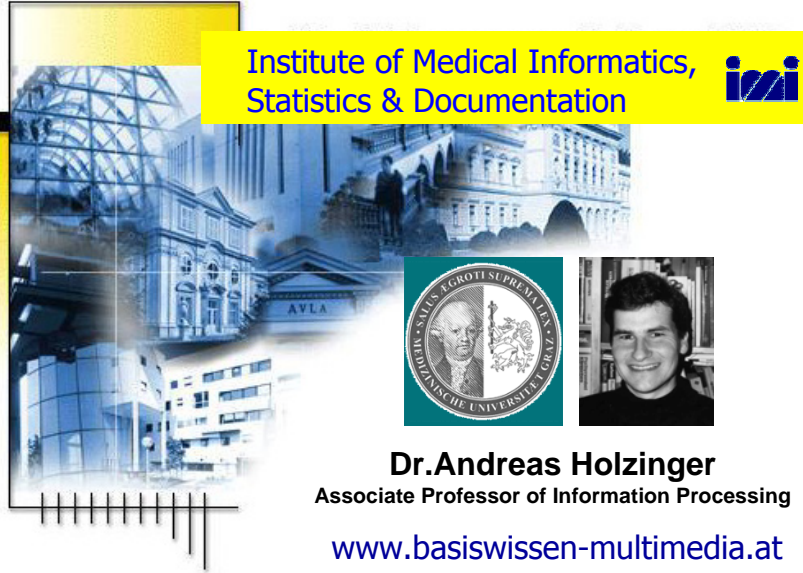


**Considering the Human in Multimedia:  
Learner Centered Design (LCD) &  
Person Centered eLearning (PCeL)**



**Welcome**



**Good morning**



Institute of Medical Informatics,  
Statistics & Documentation **imi**



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- Richard Clark (1994):  
**Media will never influence learning,**  
*Educational Technology R&D (42), 21-29*
- Salomon (1984):  
**Rich media may be more entertaining but it doesn't necessarily lead to better learning!**



Exceptions:

- Simulations,
- Animations,
- Visualization &
- Motivational Effects

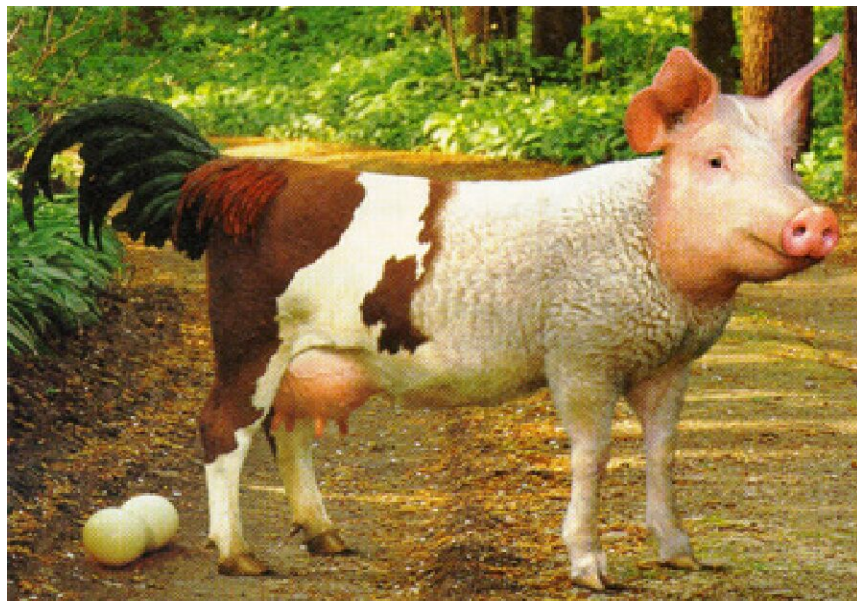
*Schank (1994), Holzinger (1997), Holzinger (2000)*

- Theory of atoms (Democrit, 400 B.C.)
- Information Chunk (Miller, 1956)
- OO-Theory (Dahl & Nygaard, 1966)

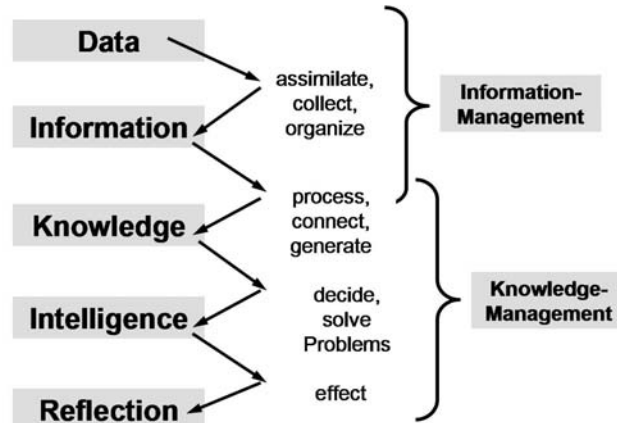
“.... a fundamental idea is that a learning object can stand on its own and may be reused.”



*Reigeluth & Nelson (1997), Saddik et al. (2000), Holzinger (2001)*



# BUT PLEASE: Learning is a basic cognitive process ... not an object...



*Skinner (1954), Gagné (1965), Holzinger (2000)*





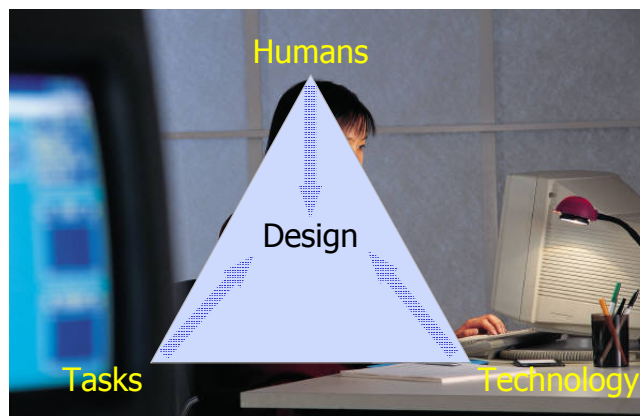
**Methods cause learning**

**Practice**  
**Simulation**  
**Discussion**  
**Presentation**  
**Demonstration**

**Media deliver information**



**Human-Computer Interaction (HCI)**  
includes both, methods and media



*Holzinger (2003), Holzinger (2004)*

- **Ease of learning**
  - Grasp, understand fast, efficient, effective ...
- **Recall**
  - Remember materials for a long time ...
- **Productivity**
  - Perform tasks quickly and efficiently ...
- **Minimal error rates**
  - Adapt in new situations ...
- **High end-user satisfaction**
  - Confident of success ...

*Nielsen (1993), Nielsen & Levy (1994), Nielsen (1996)*

<i>Dimension</i>	<i>Description, e.g. ...</i>	<i>Benchmark</i>
(1) LEARNABILITY	Low start-up overhead ...	Time to perform task
(2) EFFICIENCY	Achieving high productivity ...	Measuring task performance
(3) MEMORABILITY	Easy to remember ...	Time to repeat task
(4) FAULT-TOLERABILITY	Easy to recover from errors ...	Number of errors
(5) SATISFACTION	Pleasant to use ...	Users subjective opinion

<b>Objective</b>	<b>Effectiveness</b>	<b>Efficiency</b>	<b>Satisfaction</b>
<b>Suitability</b>	% of goals achieved	Time to Complete	Subjective Rating
<b>Appropriateness</b>	# of power features used	Relative to expert	Rating of power
<b>Learnability</b>	% learned	Time to learn	Rating of learning
<b>Error</b>	% errors corrected	Time to correct	Rating of error handling

*Dix et al. (1998), ISO 9241, ISO 13407*

### **Teacher-Centered**

"Knowledge" (BEWARE!)  
is transmitted from teacher to student

### **Learner-Centered**

Students construct Knowledge (Yes!) through gathering and synthesizing information and integrating it with the general skills of inquiry, communication, critical thinking and problem solving.



### Teacher-Centered

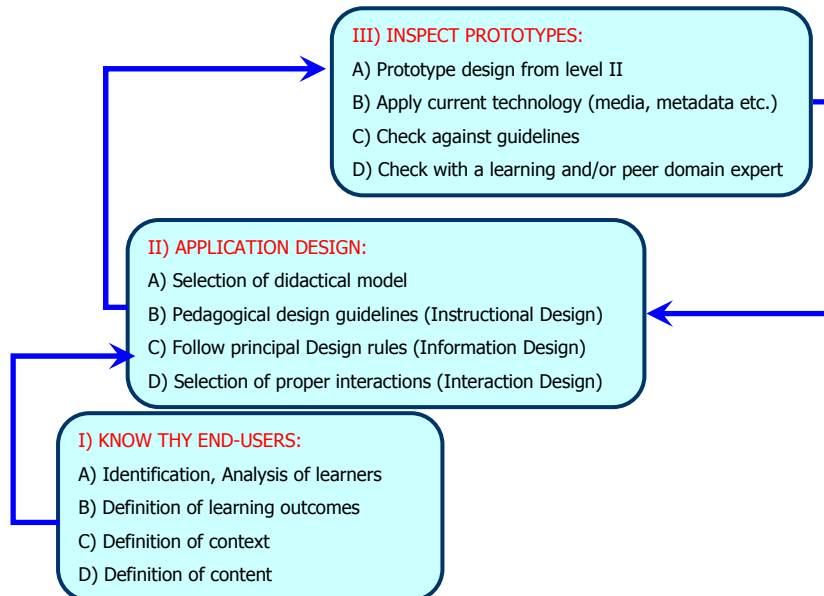
Emphasis is on acquisition of knowledge outside the context in which it will be used.

### Learner-Centered

Emphasis is on using and communicating knowledge effectively to address enduring and emerging issues and **problems in real-life contexts.**

- “Know thy end-users”
- Common dimensions include
  - Role – Dominant persona of users (job, affiliation)
  - Goals – Reason for the interaction
  - Circumstances of Use – Setting, resources, strategy, timing
  - Culture – Group level beliefs, language, preferences
  - Ergonomics – Relevant perceptual & motor abilities, skills



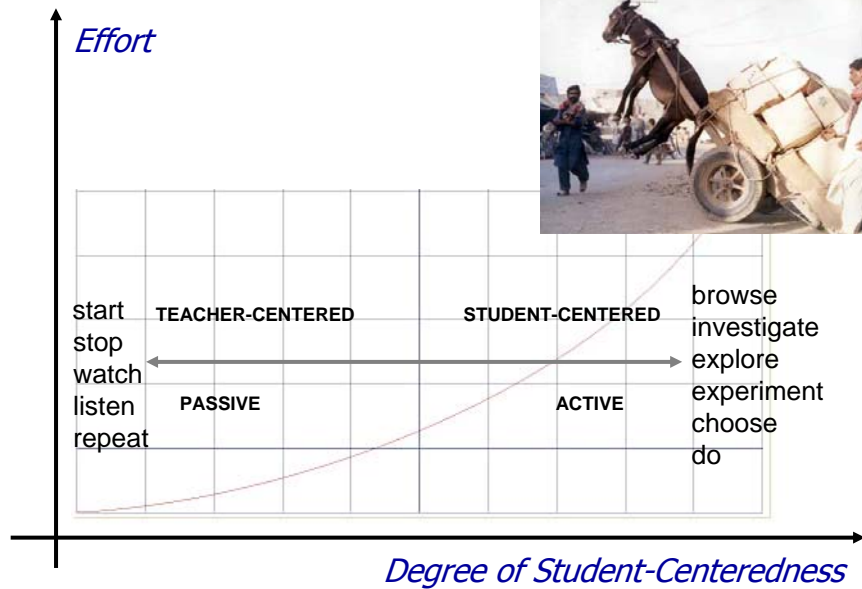


... is a form of blended learning  
in which:



- A) the computer takes over a major part of the transmission of information, whilst
- B) face-to-face phases serve to co-create meaning, develop social and communication skills, and shape interpersonal attitudes.

*(Rogers, 1961)*



### What students hate ...

- Download Delays
- Downloading millions of Plug-ins
- Having to Change Fonts or Other Settings
- Having to Reboot after every session
- Long Scrolling Text – endless reading on screens
- Links Within a Page and not finding back
- Dead Ends/Can't Get Back
- Getting Lost
- No Online Moderator, no instructor available
- Overly Detailed Graphical User Interface
- Unnecessary Distractions (flashing, popping, ...)





- technology support alone does not make a difference in students' motivation if it is not matched by interpersonal dispositions of the teacher (=facilitator)



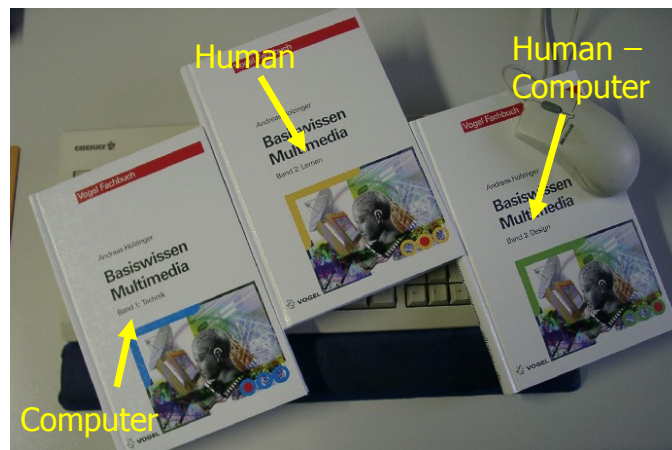
We must provide benefits ...



1.4.05 Klagenfurt ... more books ...

ISSEP

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