

Multimedia in Teacher Training (and Education)

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Content

- Training courses for in-service teachers
- Advantages of one type of medium over another type
- Evaluation of MM – list of criteria



Training of in-service teachers

- Aims and skills
 - to introduce MM
 - to become familiar with
 - to be able to apply
 - to stimulate critical view
 - ...
- Similar for teacher education / different background
 - school experience
 - generation problem



Training of in-service teachers

- Topics in MM training
 - experiment-PC interfaces
 - interactive screen experiments (ISEs)
 - Physlets[©] and Physlet scriptors
 - web resources for teachers
- Courses
 - 2 days of practical work in lab / with PC
 - 6 times, each with 20-25 in-service teachers
(~ 15% of physics teachers of our federal state)

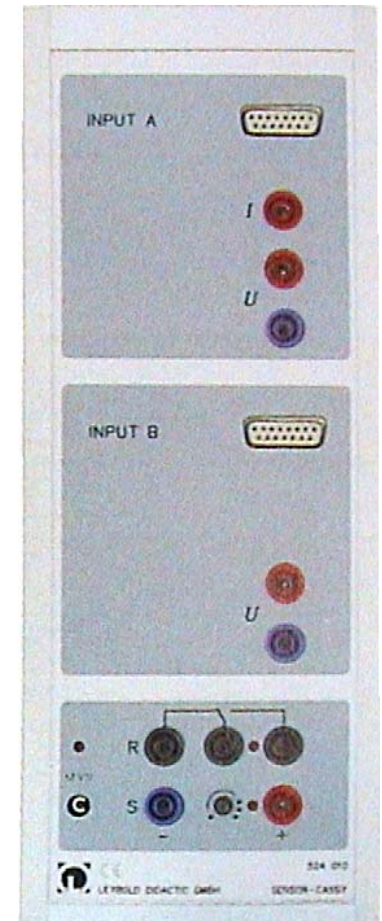
Training of in-service teachers

■ Experiment-PC interfaces

- CASSY (Leybold DE)
- COBRA (PHYWE DE)
- CoachLab (CMA/Amstel NL)
- VideoCom (Leybold DE)

■ Aims

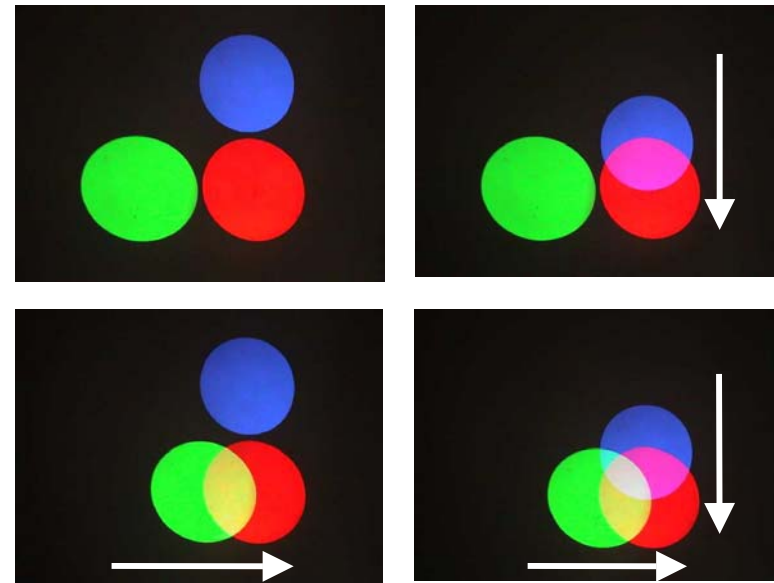
- to be informed about concept(s)
- to become familiar
- ...



CASSY

Training of in-service teachers

- Interactive screen experiments (ISEs)
 - lab work
 - setup of experiment
 - documentation of execution
 - 2dim order of fotos
 - equipment
 - digital camera
 - ISE viewer (Java applet)
 - application, e.g.
 - physics project
 - pupils as developers



superposition of colours

more examples on CD

Training of in-service teachers

- **Physlets[©]** (W. Christian, Davidson College NC, USA)

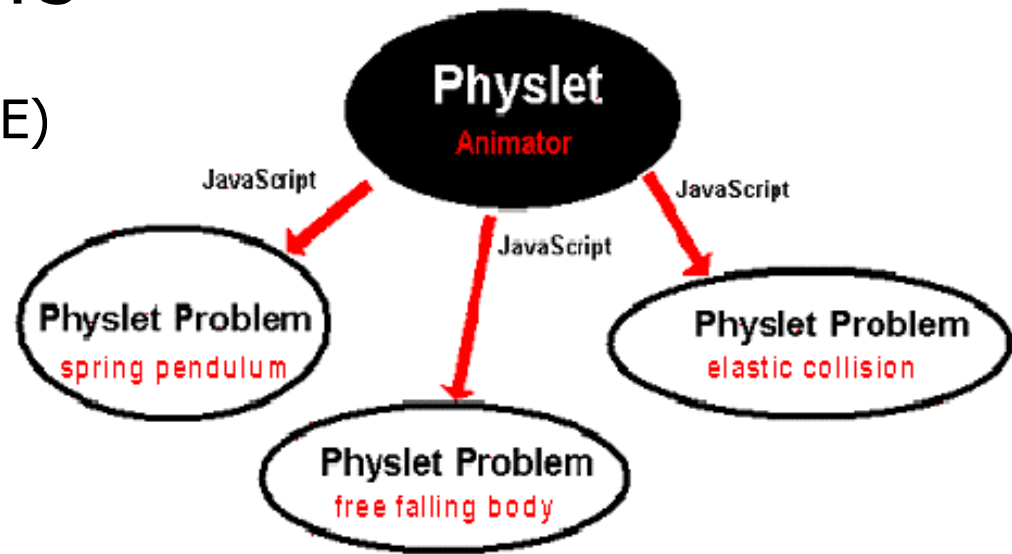
example

- **Physlet scriptors**

(F. Schweickert,
Univ. Kaiserslautern, DE)

example

- simple, flexible
- for the web
- freely distributable
- teachers act as developers



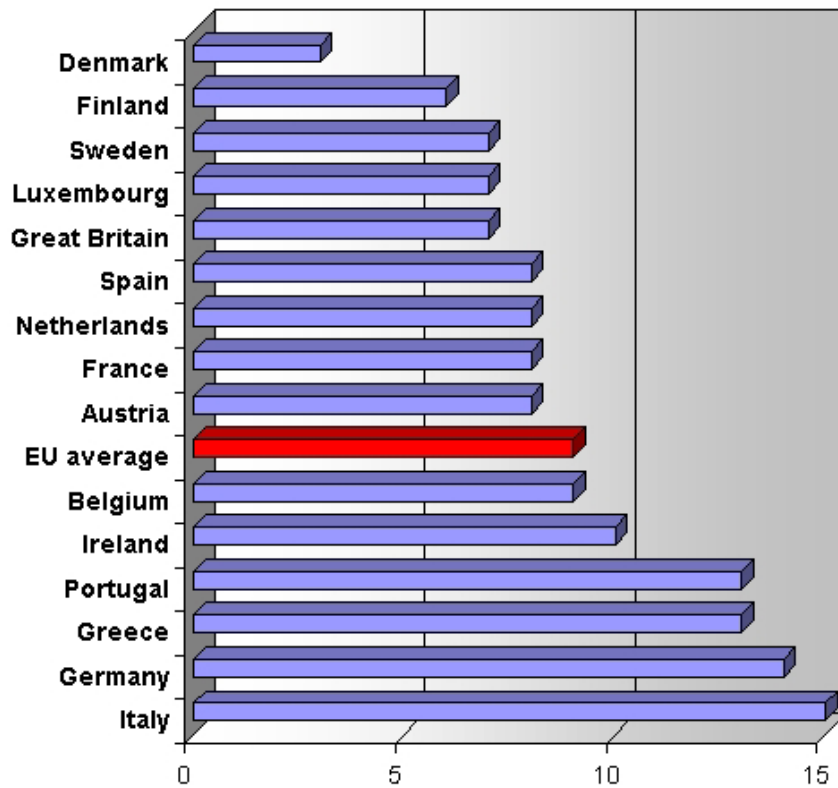
more examples on CD



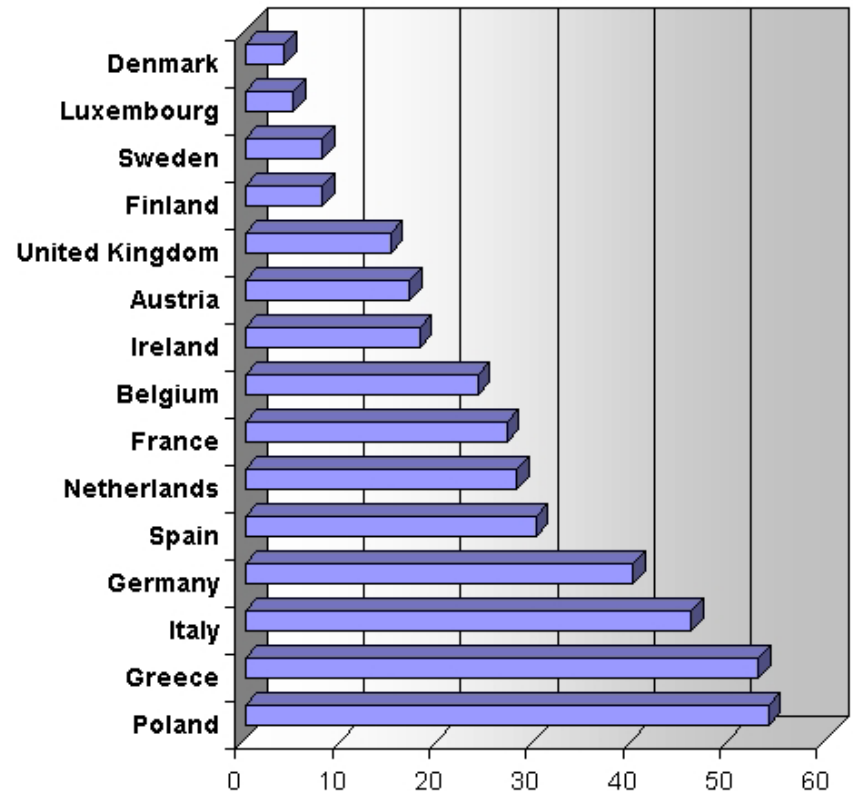
Training of in-service teachers

- Web resources for teachers
(educational institutions, networks, ...)
 - how to find, how to apply, ... MM material
 - critical view
(quality of MM, reliability, ... → judgement criteria)
- Service and support / training courses
(Physics Education Network: **PEN**)

Training of in-service teachers



Number of Pupils sharing one
Computer in School (2002)



Number of Pupils per Internet
Connection (2001)



Advantages of types of MM

- Questions arising in education and training of teachers
 - Can MM replace/supply/support experiments? When? Why? How?
 - Which skills must / can be attained?
 - What type of MM is more suitable to teach with and why?
 - Which are the advantages of MM (types)?

Advantages of types of MM

■ Type of MM

- animations
- simulations
- interactive screen experiments
- videos (qual./quant.)
- remote labs
- ...



■ Didactics

- teaching objectives
- skills

■ Methods

- demonstration ... hands-on activity
- lesson ... homework
- function in teaching-learning process



Evaluation criteria for MM

- Classical schemes
 - content, didactics, method, technical
 - several disadvantages
- Pragmatical scheme
 - based on discussions of MM working group of EUPEN ([MPTL](#))
 - user independent, easy to apply, all media types
 - single medium – not complete courses



Evaluation criteria for MM

- Motivation
 - 1. user-friendliness, 2. attractiveness, 3. clarity of purpose and instruction
- Content
 - 4. relevance, 5. scope, 6. correctness
- Method
 - 7. flexibility, 8. matching the target group, 9. realization, 10. documentation

Hand-out



Summary

- Contents of teacher training on MM
- Open questions concerning advantages of one type of medium over another one
- New approach for evaluation of MM



Proposed WS activities

- Focus on evaluation criteria
- Catalogue as a basis for discussion

- Procedure
 - choose a few examples (same or different kinds)
 - apply and discuss criteria in small groups
 - discussion / conclusion in plenum

Thanks for your attention!

...and let's have fun in the WS...