

DTU



## Presentation on pedagogical methods

## DTU Learning Lab

Centre for teaching & learning in engineering education



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- M.Sc. Biology
- Master in education and learning

Special focus:

- Lifelong learning and continuing education
- Online teaching and learning

Current project: How does brilliant teachers teach?

# MY LABORATORY HAS PREVIOUSLY ORGANISED

# MY LAB PROVIDES

	THEORETICAL WORKSHOPS	LABORATORY TRAINING WORKSHOPS	VIRTUAL OR PHYSICAL COURSES	NATIONAL EXERCISES (E.G. EQA)	MEETINGS WITH LOCAL LABS (E.G. FOR NETWORKING)	DOCUMENTS FOR GUIDANCE TO LOCAL LABS	DIRECT GUIDANCE TO LOCAL LABS (E.G. BY PHONE)
BULGARIA	✓	✓	✓	✓	✓	W	✓
CROATIA					X		X
CZECHIA	X	X	X	X	X	X	X
ESTONIA	-	-	-	-	+	-	+
HUNGARY			X	X		X	(X)
IRELAND		X				X	X
ITALY	X		X			X	X
LATVIA				X	X		X
LITHUANIA							X
MOLDOVA	+	+	+	+	+	+	+
ROMANIA		X					X
SERBIA					X	X	X
SLOVAKIA				X	X	X	X
SLOVENIA							X
SPAIN		X	X		X	X	X

**Teaching ≠ Learning**

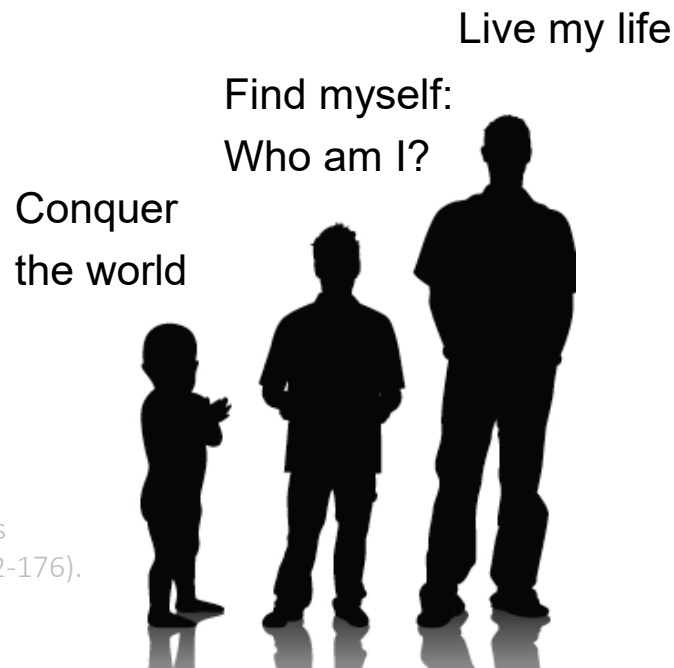
**S(He) who works learns**

**Teaching professionals ≠ Teaching students**

# Meaningful and significant learning in adulthood

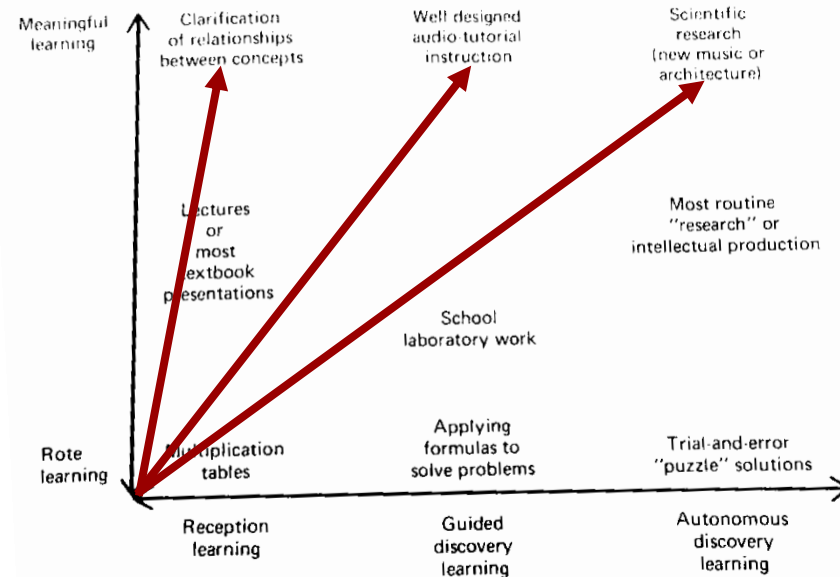
- Learning in adulthood tends to be the more meaningful and significant, the more:
  - Autonomy and self-initiated the teaching situation is
  - Peers are linked and involved with peers in binding communities
  - The teaching builds upon the participants' needs and experience

Source: Jacobsen, 1991, p. 235f



Source: Illeris (1999, p. 162-176).

## Meaningful and significant learning in adulthood



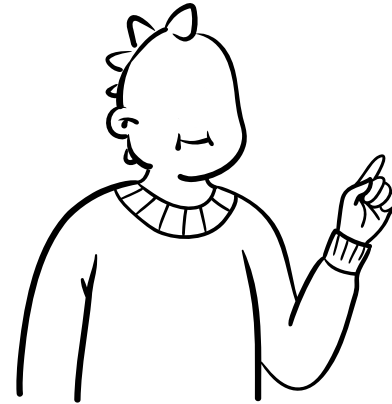
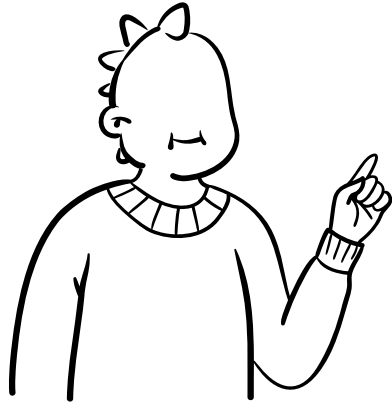
# Transfer biochemical assay to a new laboratory



You are competent laboratory people and know about all the technical, biological, chemical errors that occur when we move an analysis from one laboratory to another.

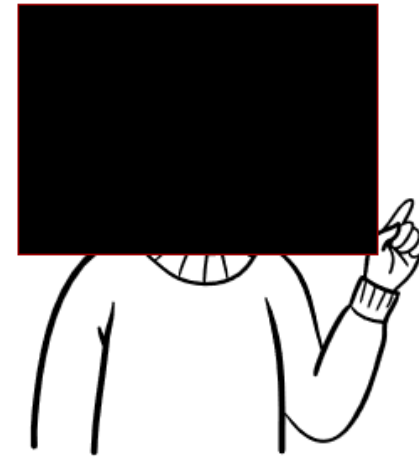
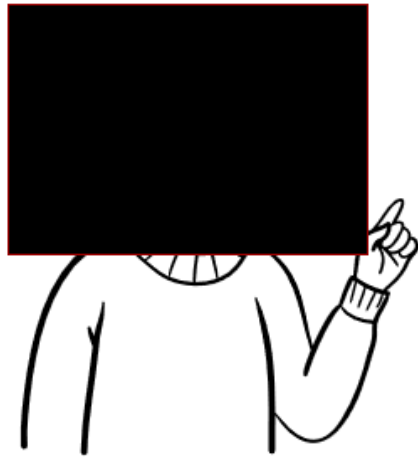
Can we collectively list 10 things that can go wrong?

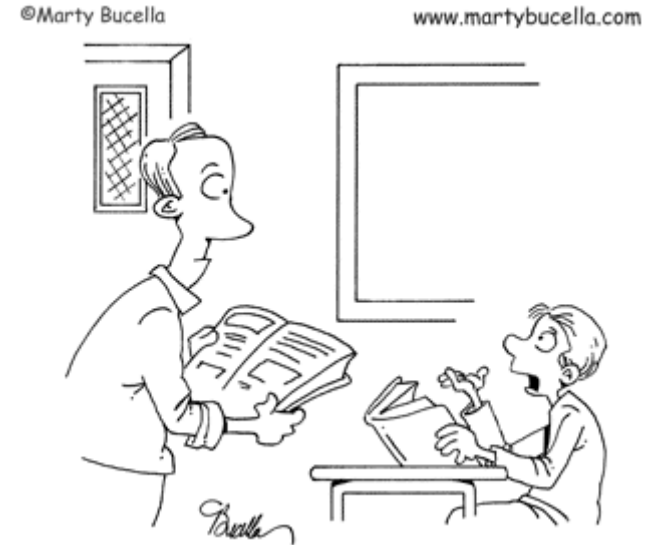
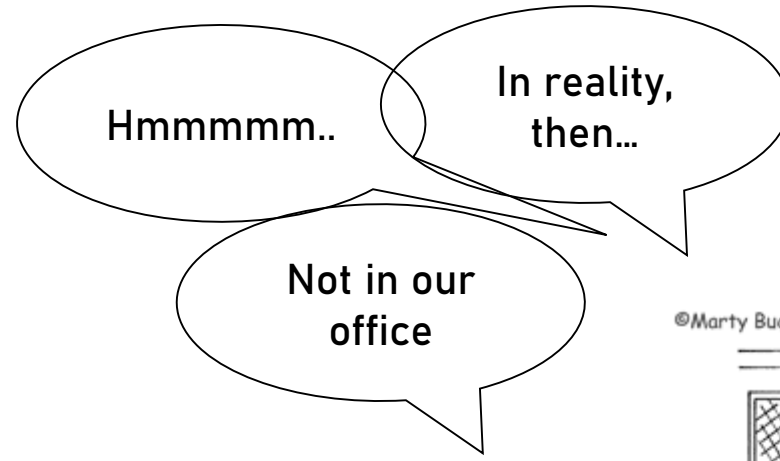
# Transfer learning to a new laboratorie





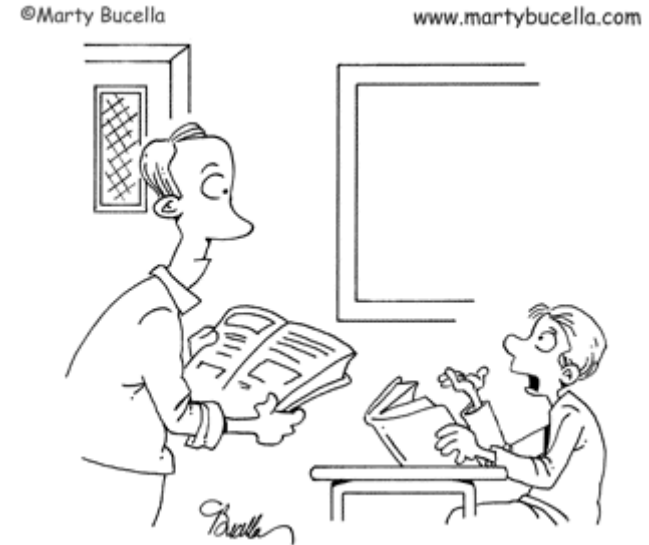
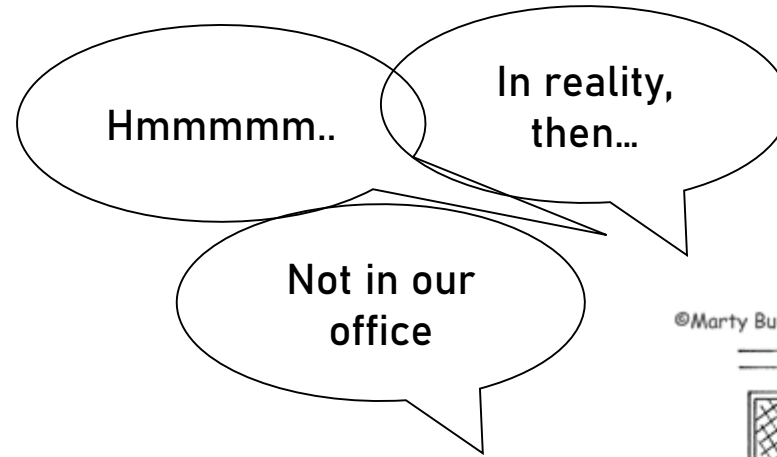
# Transfer learning to a new laboratorie





What do we know about adult learners

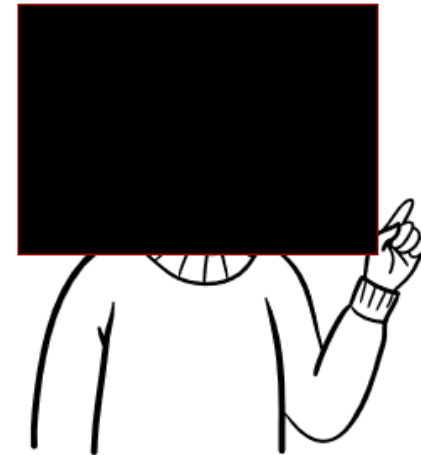
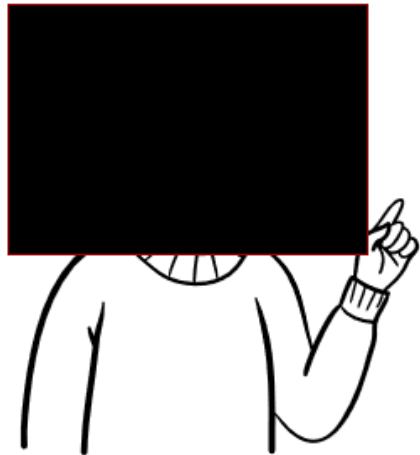
- Experienced**
- Self-directed**
- Real-world relevance**
- Time**



**If transfer is about reflective learning,  
real world relevance, etc.**

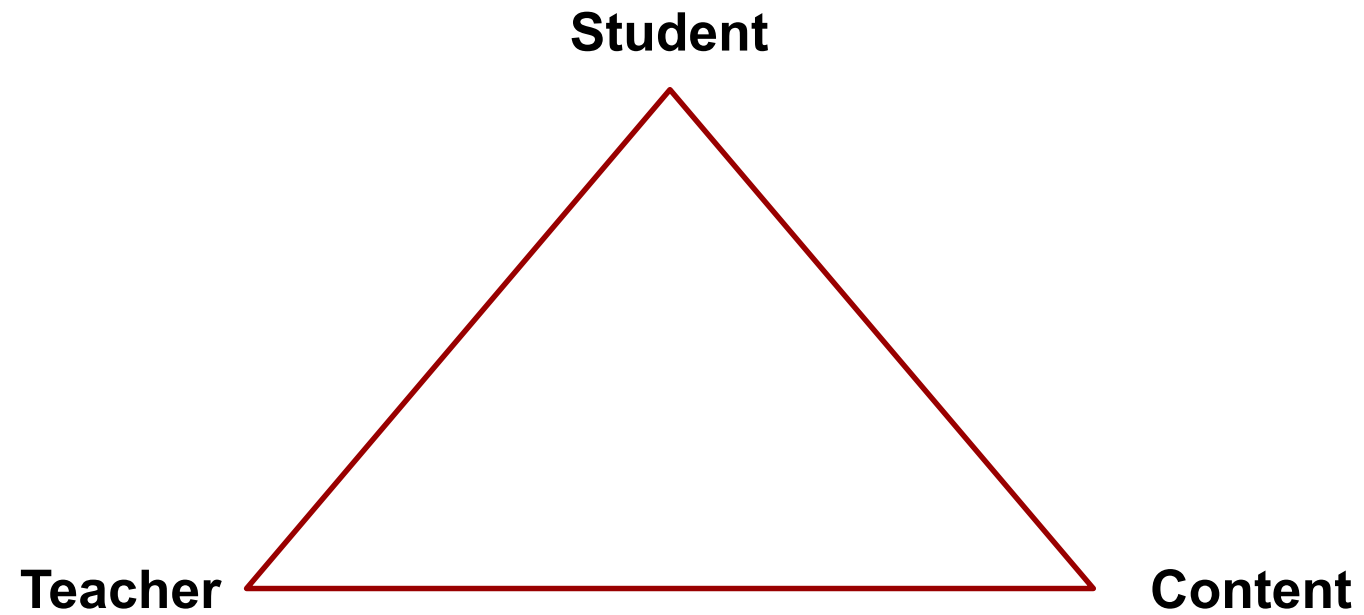
**Is this student actually starting transfer?**

# Transfer learning to a new laboratorie

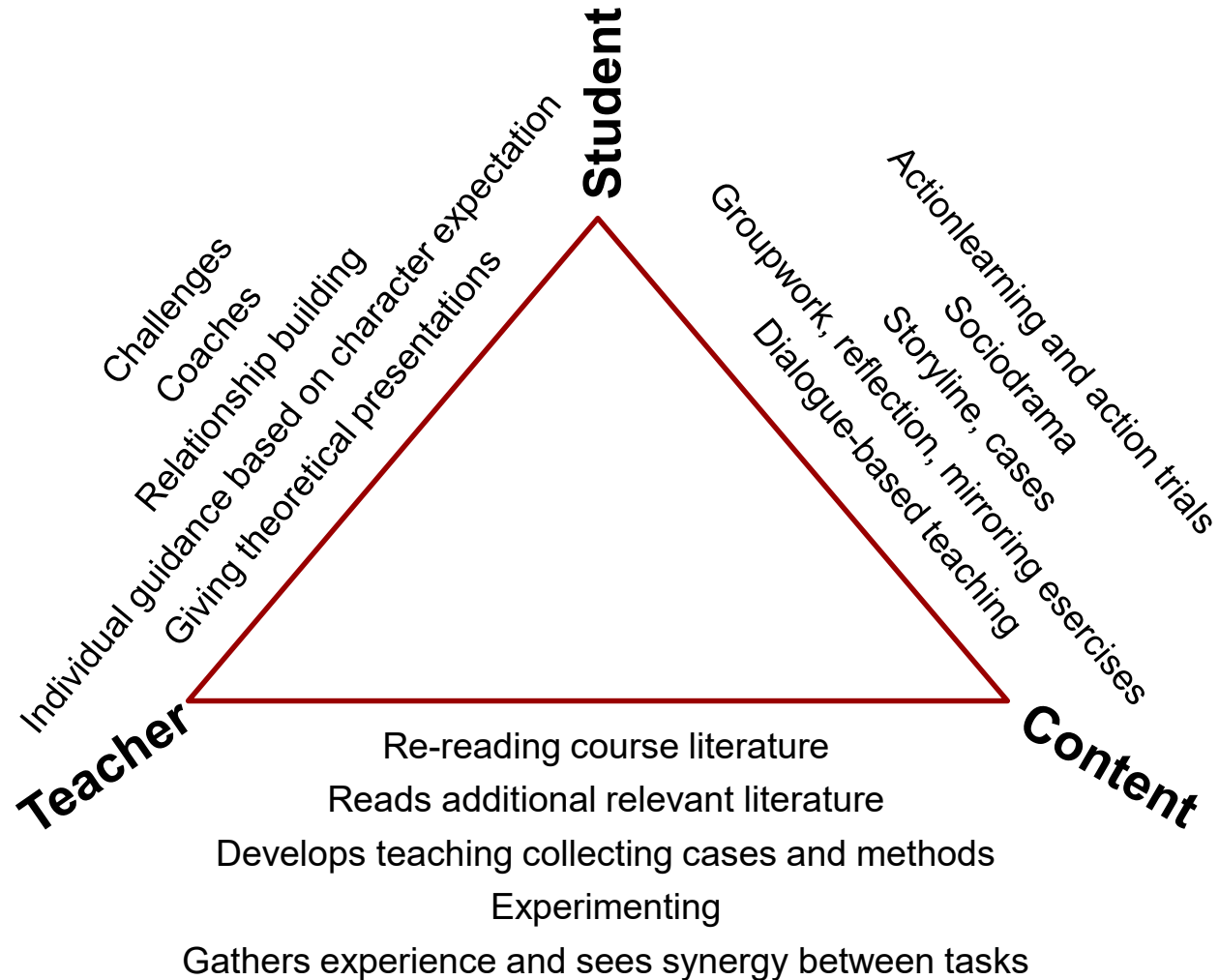


Can we collectively list 10 things we do to encourage transfer?

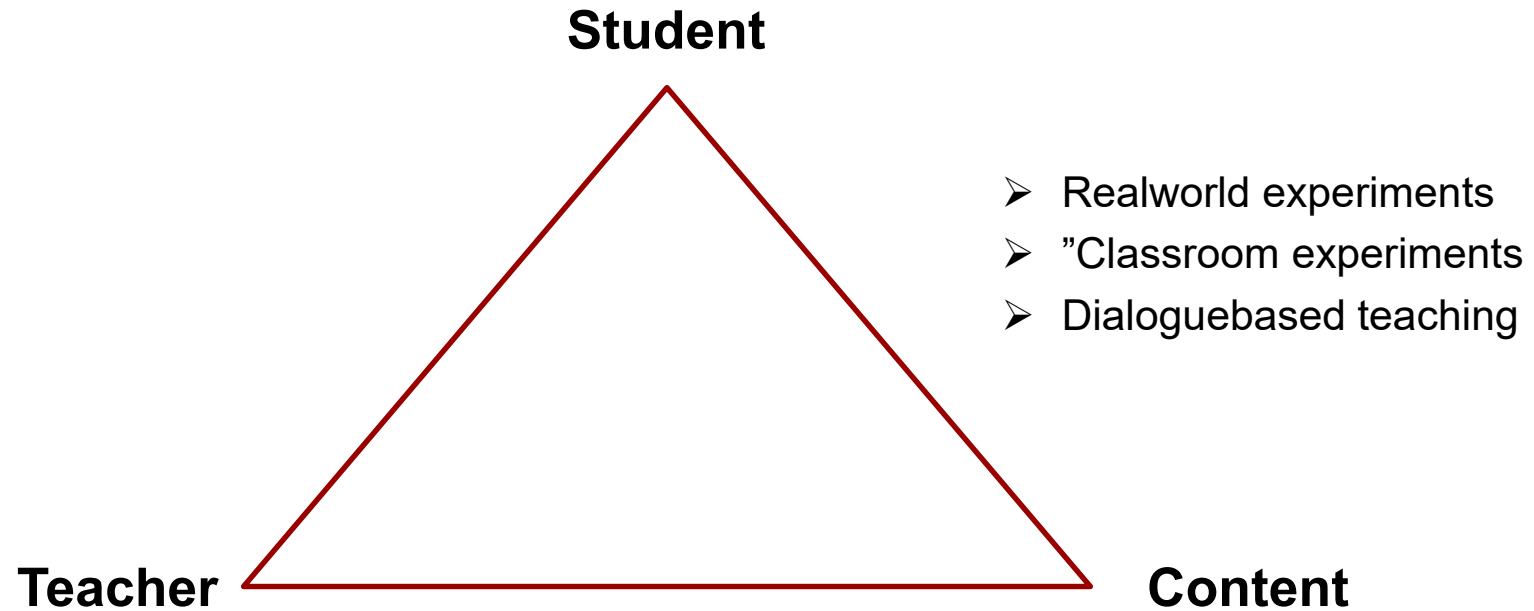
# How brilliant teachers teach



# Observations across interviews



# The didactical triangle



# Learning activities to increase transfer

- Active learning
- Collaborate learning
- Make learning contextual
- Explicit transfer
- Assessment that promote transfer



**Teaching ≠ Learning**

**S(He) who works learns**

**Teaching professionals ≠ Teaching students**

## Based on

Peter Kugel (1993) How professors develop as teachers, *Studies in Higher Education*, 18:3, 315-328.

Svein Loeng | Edith Omwami (Reviewing editor) (2018) Various ways of understanding the concept of andragogy, *Cogent Education*, 5:1

Ausubel, D. P., Novak, J. D., & Hanesian, H. (1978). *Educational Psychology. A Cognitive View. Second Edition*. New York: Holt, Rinehart and

Illeris, K. (1999). *Læring - aktuel læringsteori i spændingsfeltet mellem Piaget, Freud og Marx*. Roskilde: Roskilde Universitetsforlag.

Jacobsen, B. (1991). *Studier i dansk voksenundervisning og folkeoplysning. Socio-psykologiske analyser*. Akademisk Forlag.

Winston.