



# Flipped Classroom

Essential ingredients: groupwork



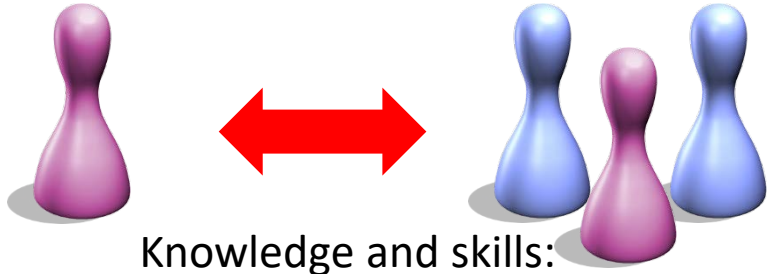
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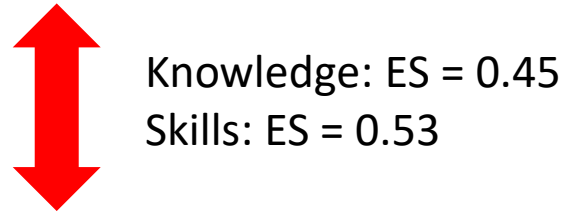
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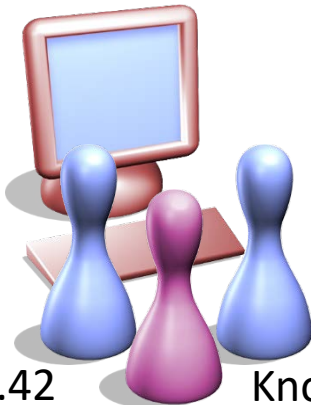
# Collaborative Learning



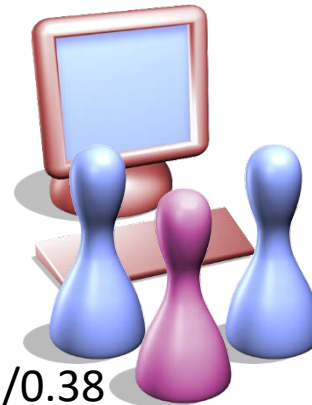
- Meta-Analysis Kyndt (2013): 65 empirical studies
- Meta-Analysis Wang (2018): 425 empirical studies



Knowledge: ES = 0.42  
Skills: ES = 0.64



Knowledge: ES = 0.55/0.38  
Skills: ES = 0.79/0.65



Additional support:

- IT-instruments: z.B. Group Awareness Tool
- Didactics: Instruction and guidance



# Blended Learning in Higher Education

- Combination of ,Computer-based Distributed Learning‘ outside the classroom and ,Face-to-Face‘ teaching inside the classroom



Out-of-Class

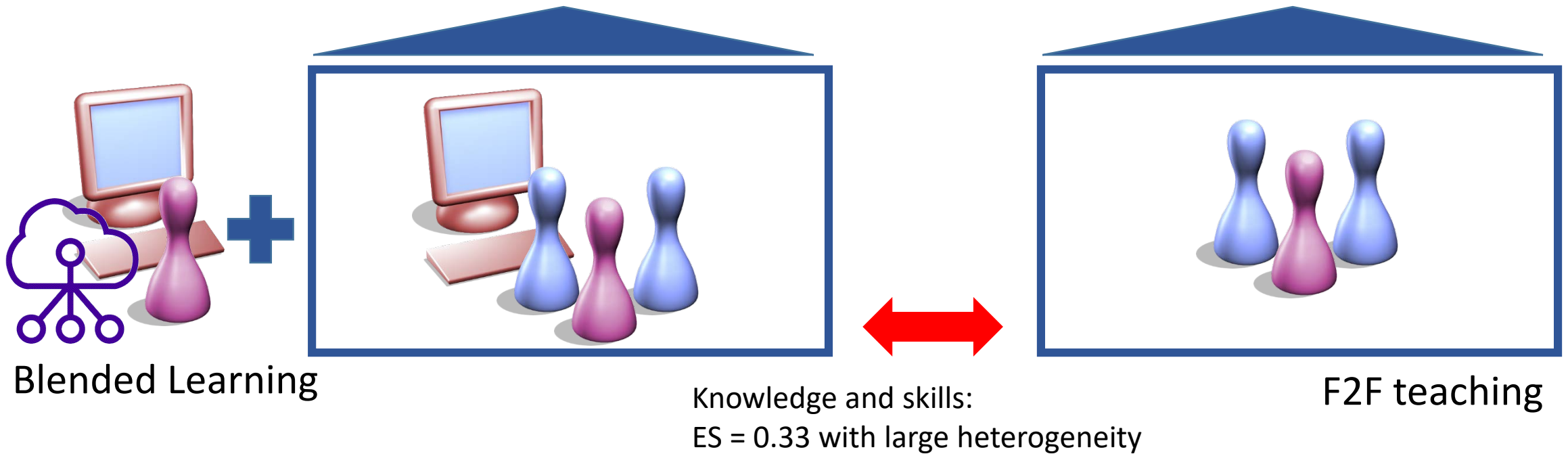


In-Class  $\geq$  50%



# Blended Learning in higher education

- Meta-Analyse Bernard (2014): 117 Effect Sizes



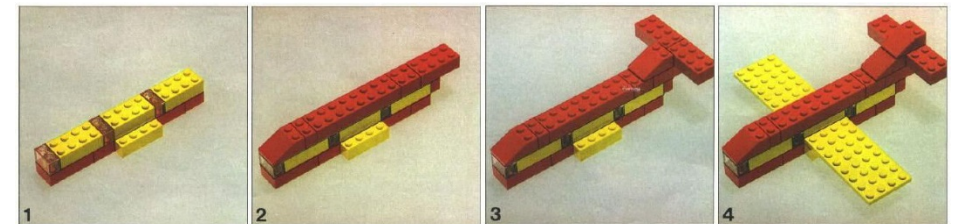
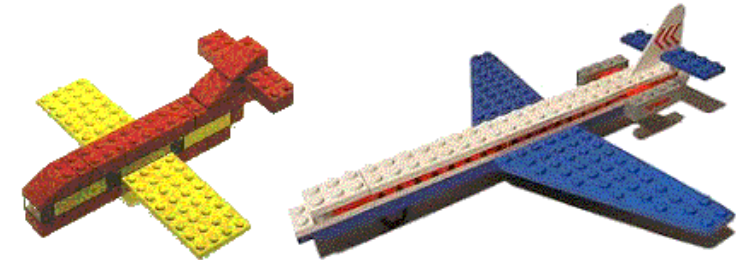
## Moderators:

- Interaction
- Cognitive support with IT



# Feedback

- Effect size of feedback on academic performance is twice as large as the average effect size across all education factors (Hattie, 2007);
- Effective Feedback:
  - relates to the task and not to the person
  - not threatening to self-esteem and is presented in a positive way ('positive framing')
  - says something about the discrepancy between the performance shown and the goal set (negative feedback)
  - gives information about how the task can be done more effectively or efficiently
  - relates to goals



# Effective teaching formats for academic performance

Meta-analysis (Schneider, 2017): Effect-sizes for 105 variables in higher education.

- The most effective instructional variables (43) are the categories:

## 1. ‚Social interaction‘ e.g.:

- Encourage questions of participants and discussion; ES = 0.77
- Asking open questions; ES = 0.73
- Small group work (2-10 people, individual accountability and interdependence); ES = 0.51

## 2. ‚Stimulating meaningful learning‘ e.g.:

- Careful preparation of teachers; ES = 1.39
- Formulate clear goals and expectations for courses; ES = 0.75
- Enable intellectual challenge and stimulate independent thinking ES = 0.52

# Groupwork

## Disadvantages:

- Due to differences in performance level, not all students have an equal learning gain
- No guarantee that each student is individually well prepared for the team task
- Insufficient staffing to have each small group supervised by a teacher

# Team-based learning

## Key features:

- Individual preparation
- Entrance test for individuals and teams
- Decision-making tasks on complex authentic problems

1) Individual Advance Assignment

**Out-of-Class**



2) Individual Readiness Assurance Test (iRAT)



3) Team RAT



4) Instructor Clarification Review



5) Team Application



**In-Class**



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