Review of last week

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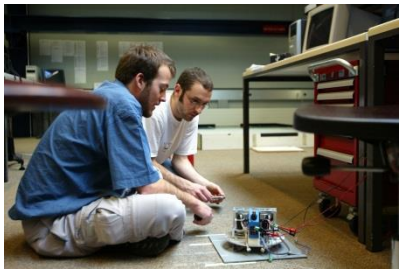
- What did you learn about yourself?
- What do you still need to practice?
- When will you use these skills?
- What feedback do you have for us as organisers?





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The Role of Others in Learning

Roland Tormey

How People Learn I

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Learning Aims

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- You will today be able to define/explain:
  - Cognitive apprenticeship
  - Disciplinary epistemologies
  - Self-effectiveness
  - Performance and Mastery goals
  - Locus of control
  - Pygmalion in the Classroom experiment

Learning (so far)

- individualistic learning
  - Individual has an experience
  - Processes it to make connections (between ideas; actions)
  - Repeats the connections, experience
  - Motivated to do the work involved

What about other people?

- 1961 – Albert Bandura Bobo Doll Experiment
  - "Is seeing violence cathartic?" (Link)

- Social Learning Theory
  - We learn through observation and modelling
  - We internalise others' views of us

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We model our disciplines

Is math a universal language?

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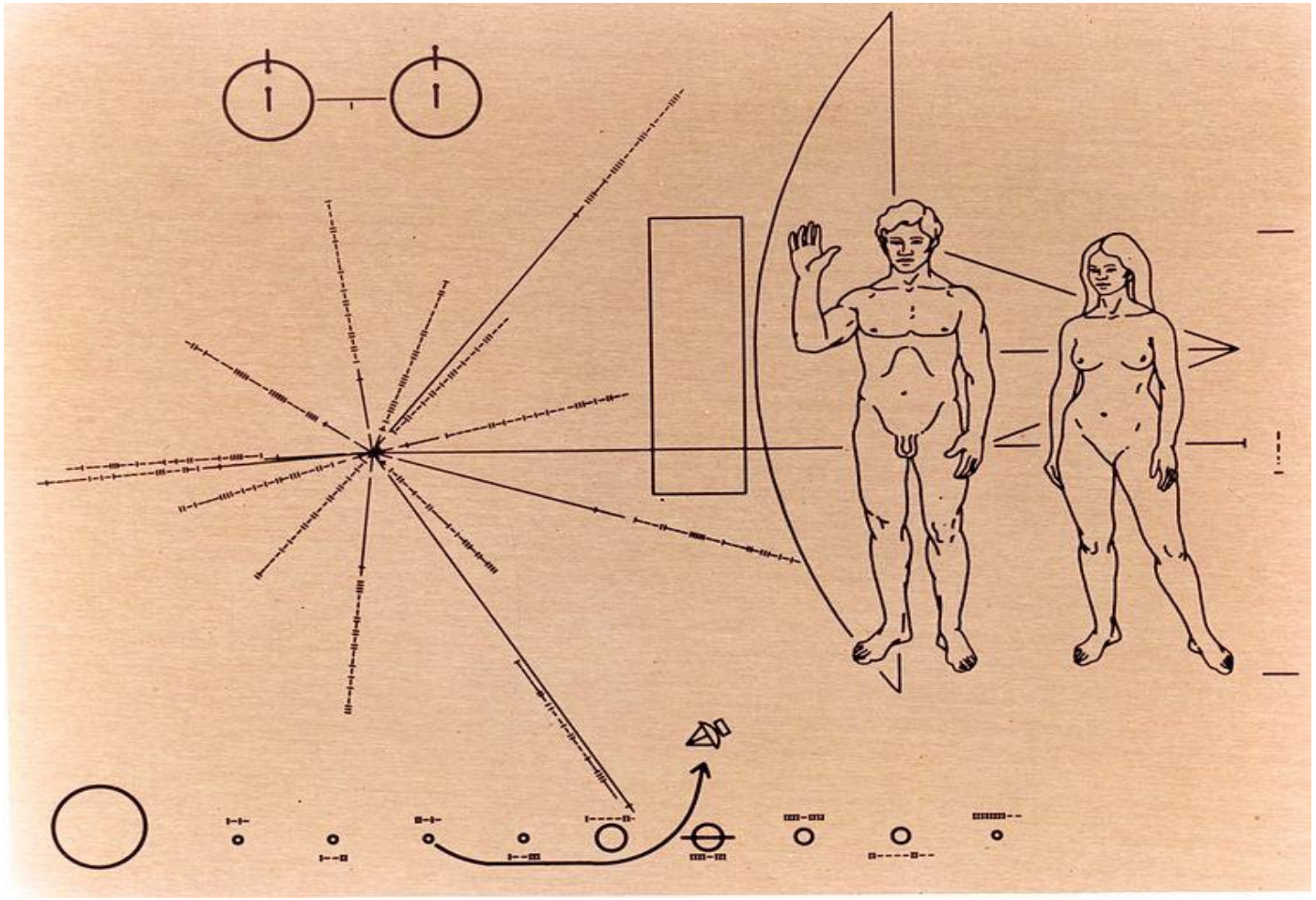
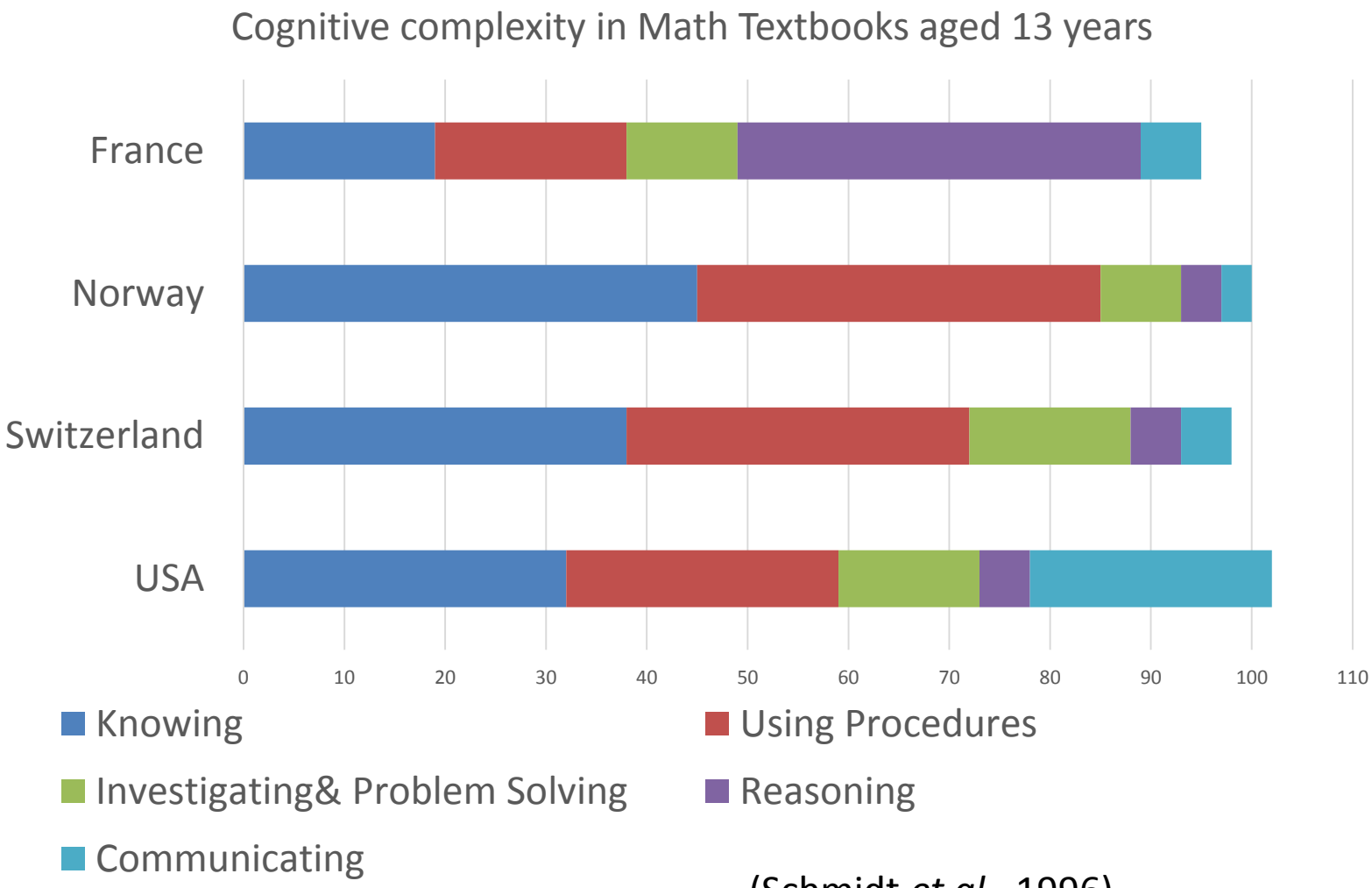
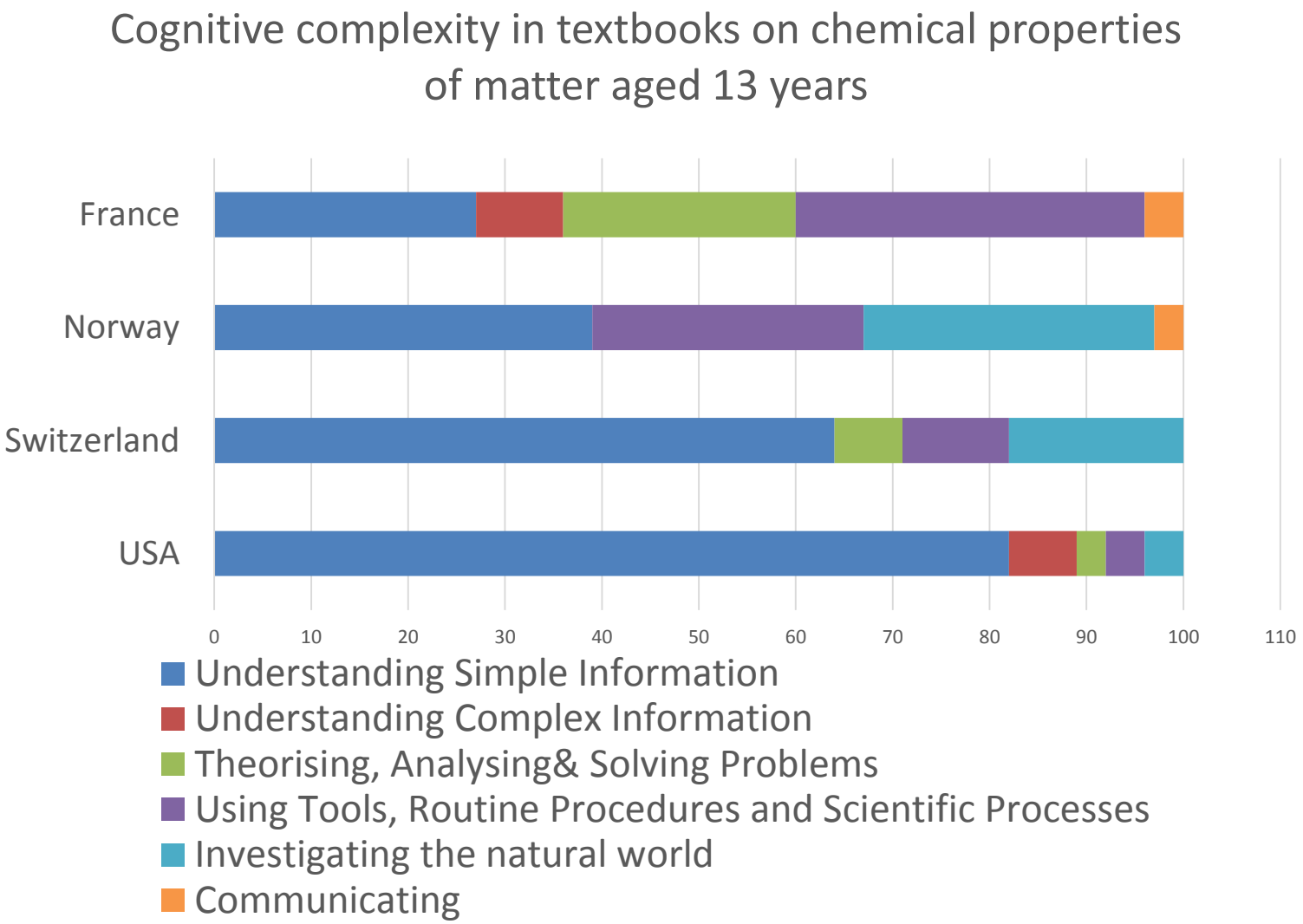


Maths across cultures



(Schmidt *et al.*, 1996)

Science across cultures



Cognitive apprenticeship

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- Learning the “ways of thinking”

- ***Disciplinary epistemologies***: rules for learning / finding out distinctive to disciplinary cultures
  - inductive vs. deductive approaches
  - Received knowledge vs. knowledge construction
  - Simplified vs uncertain models
  - ….

Activity

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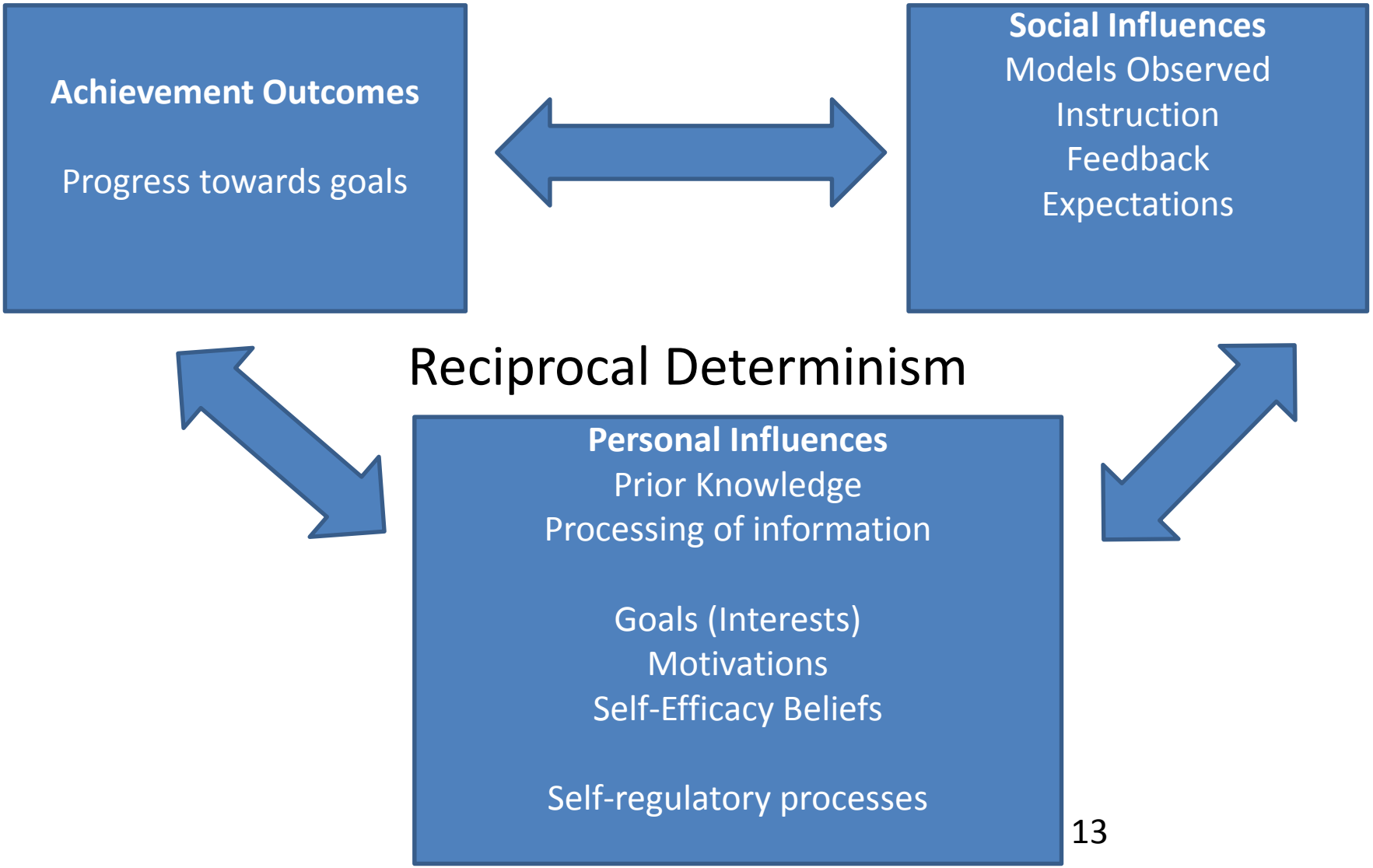
What are key features of the disciplinary epistemology of your discipline?

How do you/should you model them?

Internalising the others' gaze

Social Cognitive Theory



Self-efficacy beliefs

- " extent or strength of one's belief in one's own ability to complete tasks"
- Distinct from outcome expectancy
  - Not "If I follow the procedure I will get the right answer" but "I can solve this kind of problem"
- Distinct from self-confidence
  - Not: "I am good at mathematics,"
  - rather, "I am confident I can correctly solve calculus problems in a range of settings."

Self-efficacy and performance

- Self-efficacy associated with:
  - Choosing more challenging tasks
  - Putting in greater effort
  - Increased persistence
  - Reduced stress, anxiety and depression
  - Higher self-monitoring and evaluation
  - r = .38, account for approximately 14% of the variance in students' academic performance

(Zimmerman, 2000)

Sources of self-efficacy

- Mastery experiences
  - Outcomes perceived as positive
- Vicarious experiences
  - How have others achieved (in a context in which I lack experience)
- Social persuasions
  - Feedback from others
- Feelings of anxiety, stress, fatigue etc.

- “enactive mastery experiences are stated as the most powerful source of creating a strong sense of efficacy”
  - Tasks set appropriate for student’s developmental level
  - Goals clearly specified (feedback!)
  - Self-reflection on experience and successes

Activity

Design an activity aimed at increasing 1st years students' sense of self-efficacy in your discipline.

Gender and Self Efficacy

- Besterfield-Sacre et al. noted that:

- 1st year female engineering students **had lower confidence** in their **basic engineering knowledge** and skills, **problem-solving abilities**, and overall engineering abilities than male engineering students

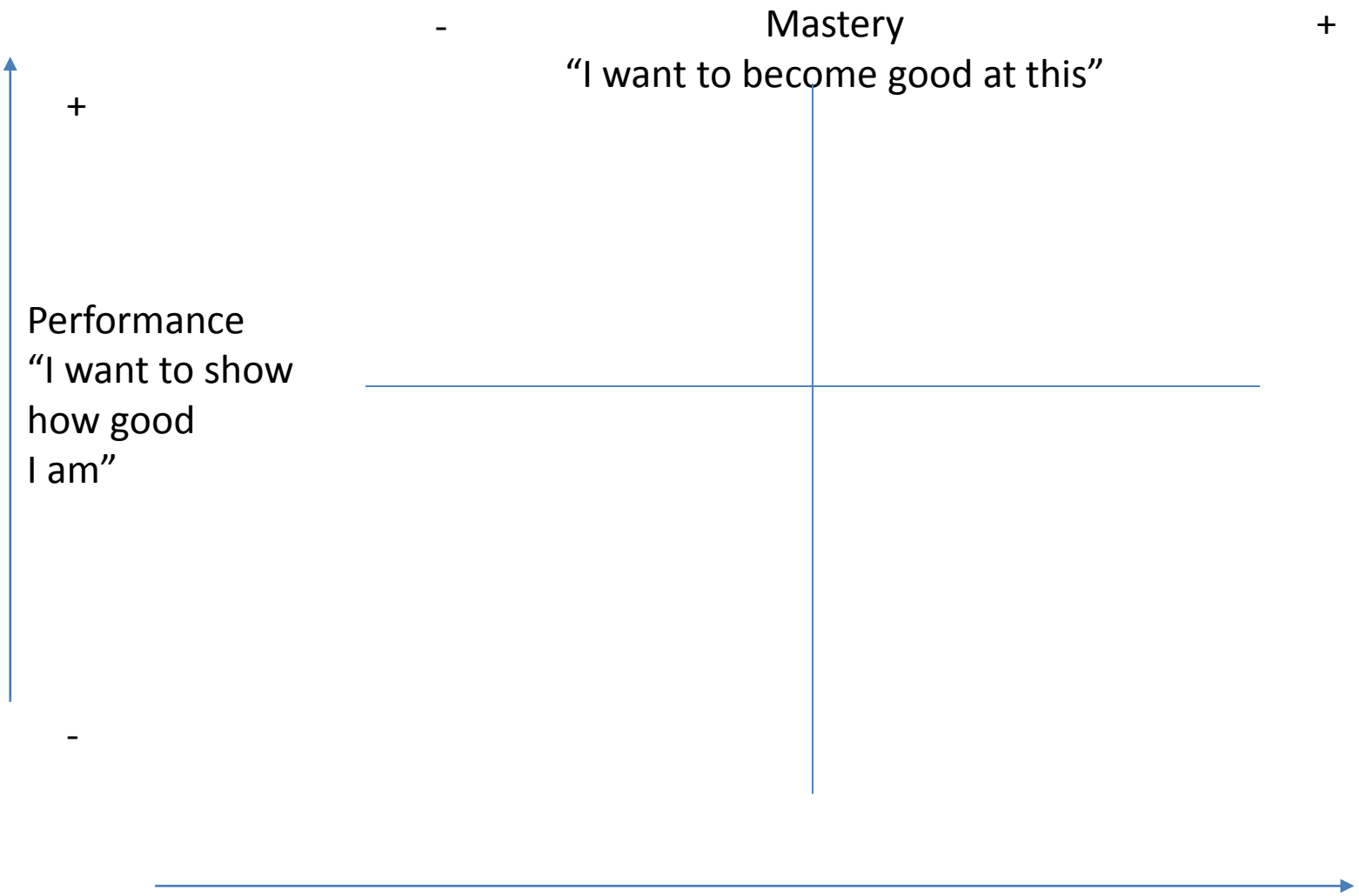
Locus of control

- Who/what is responsible for success?
  - IQ?
  - Being gifted at a particular subject?
  - "I was unlucky with the questions" or "the teacher was tricky with the questions"

    vs.
  - "I took a risk in preparing for some questions and it cost me"

- Internal “locus of control” associated with:
  - reduced stress
  - greater adaptive response to failure
  - …

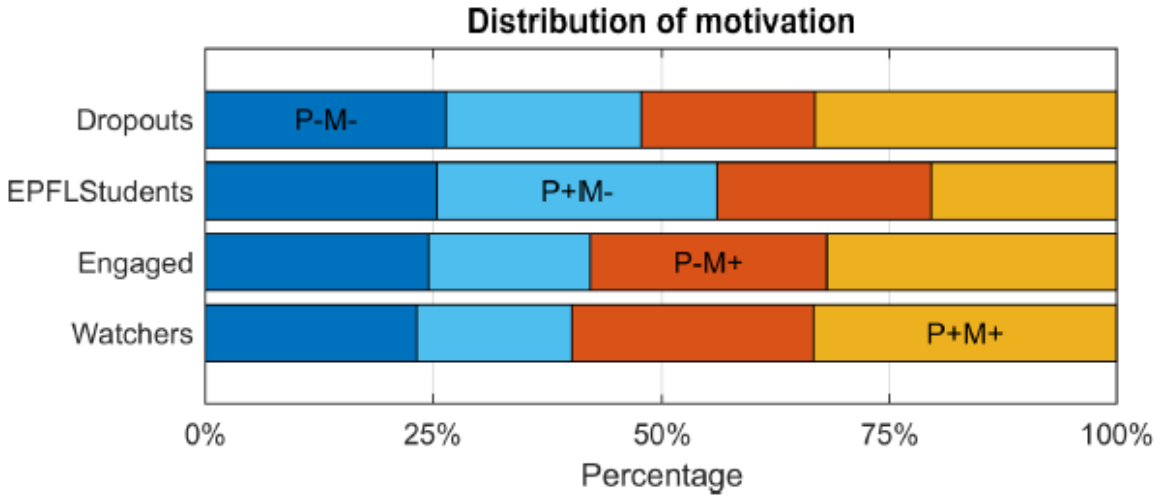
Goals

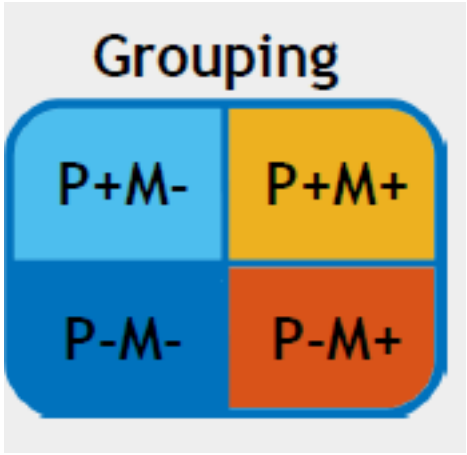

-
Mastery
"I want to become good at this"
+
+
Performance
"I want to show
how good
I am"
-

Goals

- High Mastery/High Performance tend to rate higher on:
  - Valuing of tasks
  - Enjoyment
  - Risk taking
  - Self-efficacy
  - (Attainment)

Motivation and MOOC performance





By: Du Bois, Fol, Ghadiani Künster

	Result on first assignments			
	Low	High	Low	High
P+	51%	84%	61%	79%
P-	67%	72%	84%	85%
	M-		M+	

Based on 1158 Participants Completing An EPFL MOOC

How we communicate expectations

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Do we have high expectations of learners?

- Oak School Experiment (Pygmalion effect)
  - Created artificial expectations among teachers that some pupils would do well (created teacher expectations)
  - Testing showed that those pupils **did** do well

  - **System level:** streaming/ banding, different schools (PISA 2010)
  - **Classroom level:** ask challenging questions; give time to answer; communicate high expectations; assessment for learning

- 1994 Rosenthal: the average correlation between teacher expectancy and educational outcomes was r=.26.

- Key types of effect:
  - **Climate effects: teachers seem to create a warmer environment for their favoured pupils.**
  - **Input effects: teachers appear to direct more material towards favoured students and to teach them more difficult material.**
  - Output effects: teachers appear to give favoured students more opportunities to respond
  - Feedback effects: teachers appear to give more informative and directive feedback to more favoured pupils.

Conclusion

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- Not all about the learner. Others can influence our learning too:
  - Cognitive apprenticeship
  - Disciplinary epistemologies
  - Self-effectiveness
  - Performance and Mastery goals
  - Locus of control
  - Pygmalion in the Classroom experiment

Implications for teaching

- Be clear about how to think in your subject
  - Model how to think
- Maximise self-efficacy, internal locus of control
  - Provide mastery experiences
  - Address social persuasions
  - Minimise (performance`) anxiety
- Feedback for mastery not performance
  - Not graded