



*Your teaching under a  
magnifying glass*

*The Utrecht Roadmap for Teaching  
Innovation and Scholarship*

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## Some questions...

- Who has teaching experience?
- Who has experience designing education?
- Who does this evidence-based?
- Who has a question about your teaching or student learning?



<https://www.flickr.com/photos/wouterh/2646453617/>

## **What are you going to do**

- Some listening
- Some hands on experience
- Some inspiration from three hands-on experts

# It all begins with...

wanting to

- Optimize
- Solve
- Understand
- ...

something about your own  
teaching & education



If not, why change? What is there to win?



Finding a potential **solution** to a problem that you would like to test;

Discovering new information that can help you to gain **insight** into your students' learning process;

Understanding what the **effects** of a new learning activity (innovation) are on your students' learning process.

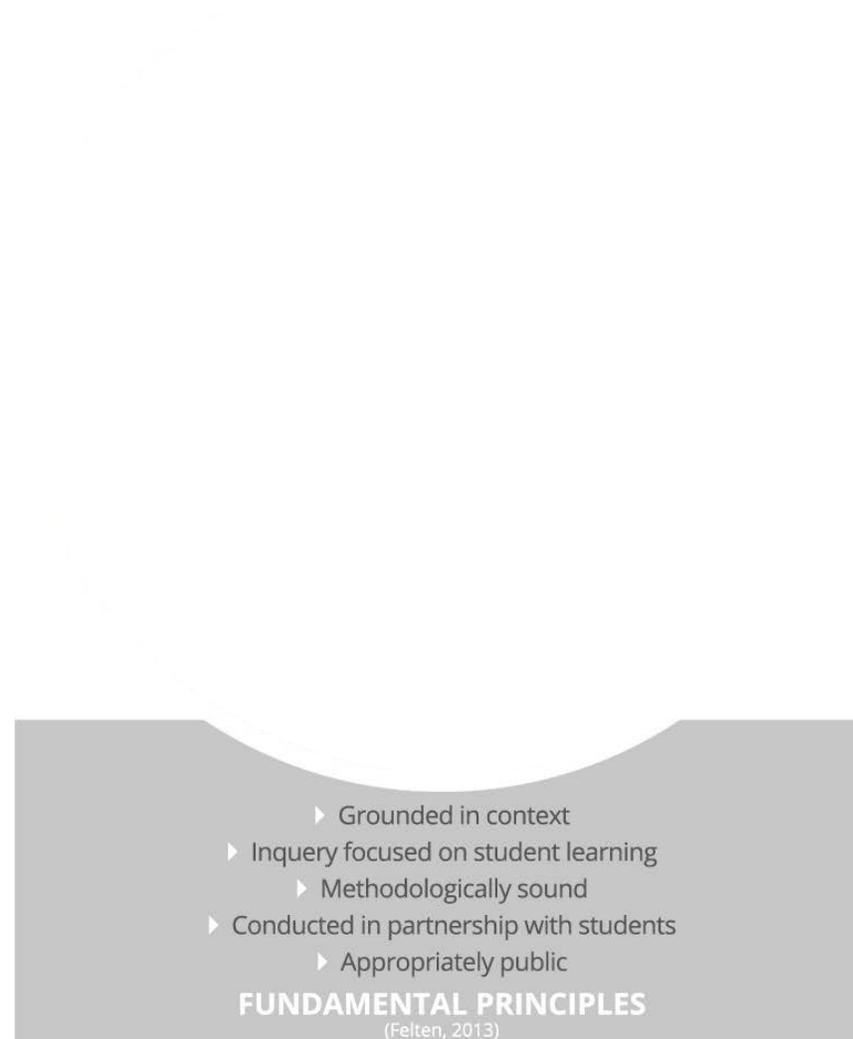
Does the use of knowledge clips to prepare students for class lead to students being more prepared?  
What can I do to stimulate my students to come to class prepared?

Why are my students not preparing themselves for class?  
What do students do when they solve difficult statistics problems?

What happens in the heads of students when I provide them with auditory feedback instead of written feedback?  
What happens to student motivation when I use peer feedback to grade student papers?

# The Utrecht Roadmap for Teaching Innovation and Scholarship

## 5 fundamental principles



# 8 steps



An important step is missing

- ▶ Grounded in context
  - ▶ Inquiry focused on student learning
    - ▶ Methodologically sound
  - ▶ Conducted in partnership with students
    - ▶ Appropriately public
- FUNDAMENTAL PRINCIPLES**  
(Felten, 2013)

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CIMO-logic

- ▶ Grounded in context
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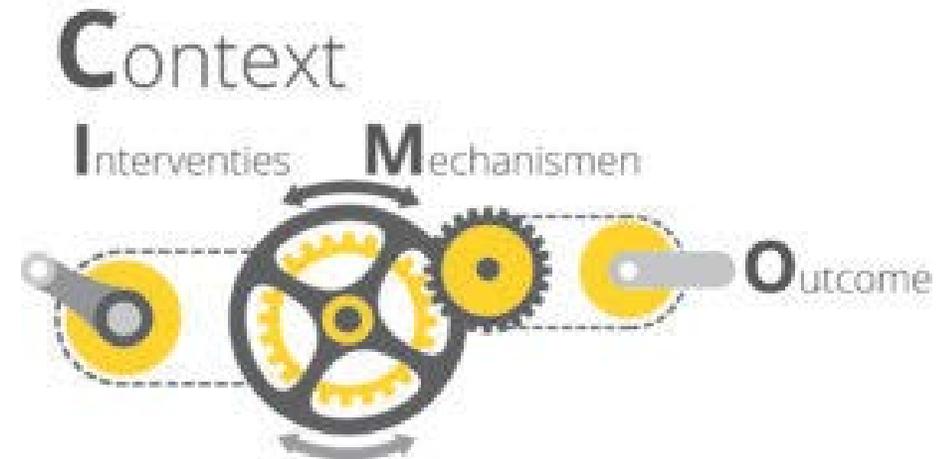
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## The CIMO-logic method

Helps you to think about:

- What you want to achieve?
- Which learning processes are behind my question?
- Why am I going to innovate?



# Zoom in and zoom out of your question



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## Step 1: Positioning



Question  
Context

## Step 2: The teaching context

(Learning) intervention



(Learning) mechanism



(Learning) outcomes



Step 3: Researchable teaching question

## Step 1: Positioning



### Question Context

#### Teaching question

Describe which teaching question you would like to be answered. What would you like to understand better or test?

#### Context

Describe the most important characteristics of the teaching environment in this project.



There are 3 kinds of questions:

- finding a potential solution to a *problem* that you would like to test;
- discovering new information that can help you to gain *insight* into your students' learning process;
- understanding what the *effects* of a new learning activity (innovation) are on your students' learning process.



## Step 1: Positioning



Question  
Context

## Step 2: The teaching context

**(Learning) intervention**



**(Learning) mechanism**



**(Learning) outcomes**



**Step 3: Researchable teaching question**

# Learning Outcomes

Describe which aspects of your students' learning process you would like to improve or understand better



It's a change in students knowledge, skills and/or attitude



Keep an eye on:  
- the objectives of your course  
- the learning outcomes



Ask yourself the 'why' question.  
Why do I want to....

## (Leer) Uitkomsten

1. Students come to class prepared
2. Better quality discussions in class
3. Better understanding of crucial concepts
4. Deep learning

Why?

Why?

Why?

# Learning Outcomes

Describe which aspects of your students' learning process you would like to understand better or improve.



It's a change in students knowledge, skills and/or attitude



Keep an eye on:

- the objectives of your course
- the learning outcomes



Ask yourself the 'reflected in' question.  
What do you want to see?

## (Learning) Outcomes

1. Deep learning
2. High quality paper
3. Providing peer feedback
4. Understanding the rules/advantages of providing peer feedback

Reflected in?

Reflected in?

Reflected in?

# Learning Intervention

Describe which teaching activities you want to use in order to achieve your desired learning outcomes.

(Learning) Intervention



An existing, newly implemented or yet to be developed learning activity.

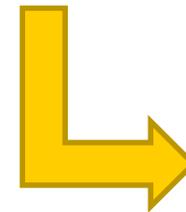
It's all about:



- the changes you're going to make to your learning environment.
  - The materials
  - The assessment
  - The tools
  - ...



How do you know what intervention to choose?  
Why do you think a specific intervention will work?



**Learning mechanisms**

**(Learning) intervention**

- A. Provide a worked out example how to provide peer feedback
- B. Reward students for providing peer feedback
- C. Regulate the proces of providing peer feedback for the students



**(Learning) mechanism**



**(Learning) outcome**

- My students come to class prepared (they gave peer feedback)
- Better quality discussions in class
- Learning the most important concepts

# Learning Mechanism

Describe which factors influence whether or not you will achieve your learning outcomes.



Three important mechanisms are:

- Cognitive processes
- Motivational processes
- Regulatory processes

**(Leer) Mechanisme**



Ask yourself one of two questions:

1. What should happen in the heads of students for the intervention to solve my problem/optimize my learning environment?
2. What is at the core of the problem I am trying to solve, what is causing it?



If you don't know:

- what is causing your problem
- why your learning environment is not working optimally:

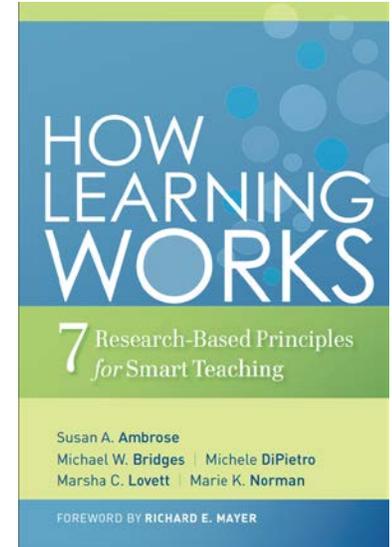
**FIGURE THIS OUT FIRST!!**

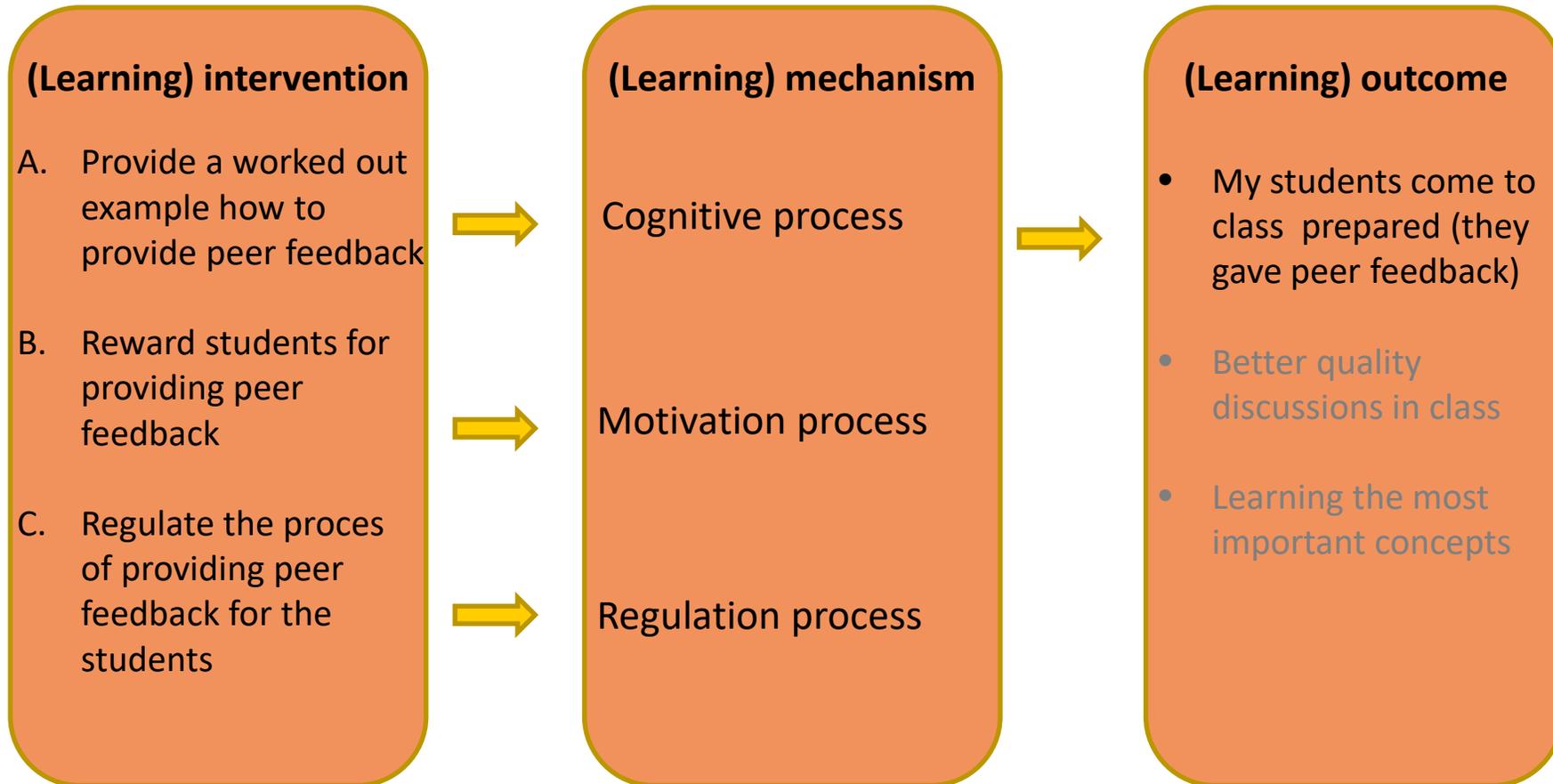
# Learning processes

- ❶ **Cognitive processes** are those that contribute to the acquisition of knowledge and understanding through the processing of information in the brain.
- ❷ **Motivational processes** are the processes that determine what drives someone to do something. It is about expectations, values, goals and reasons.
- ❸ **Regulative processes** are the processes that determine the extent to which students exercise control and therefore take responsibility for their own learning and learning.

# How to inform yourself about the mechanism?

- Students
- Teachers
- Books and articles
- Knowledge clips
- Blogs
- Experts





## Step 1: Positioning



Question  
Context

## Step 2: The teaching context

(Learning) intervention



(Learning) mechanism



(Learning) outcomes



**Step 3: Researchable teaching question**

# Step 3: Researchable teaching question



Based on your learning intervention, mechanism and outcomes.



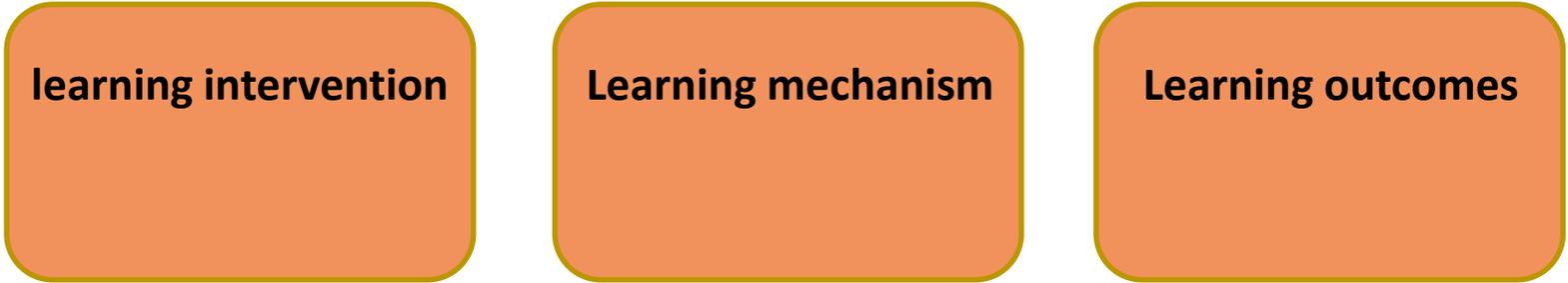
problem-based issue  
insight-based issue

→ focus on learning outcomes  
→ focus on learning mechanism

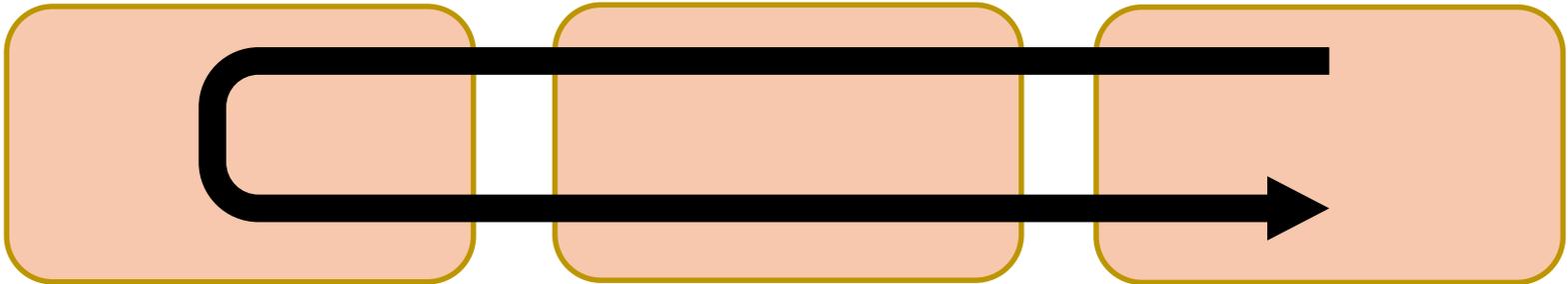


Keep the researchable teaching question focussed!

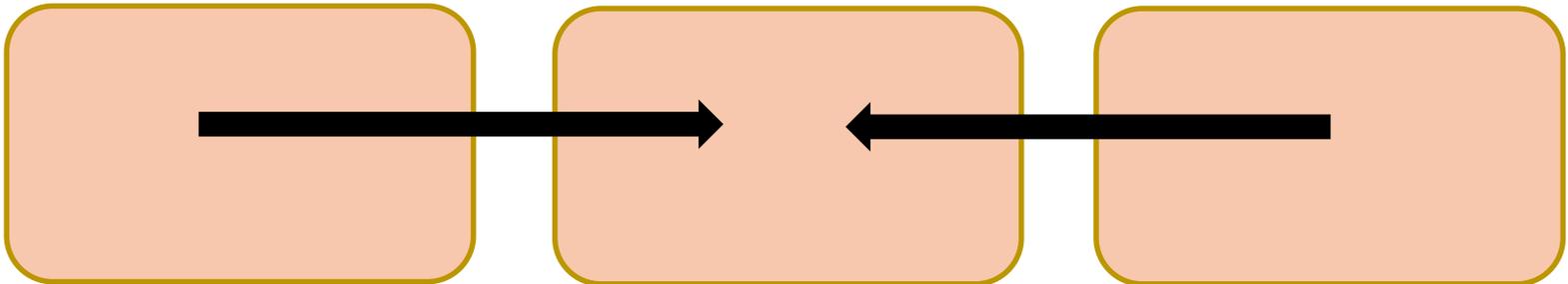
**Step 3: Researchable teaching question**



Probleem



Inzicht



# Researchable teaching question



Based on your learning intervention, mechanism and outcomes.



problem-based issue  
insight-based issue

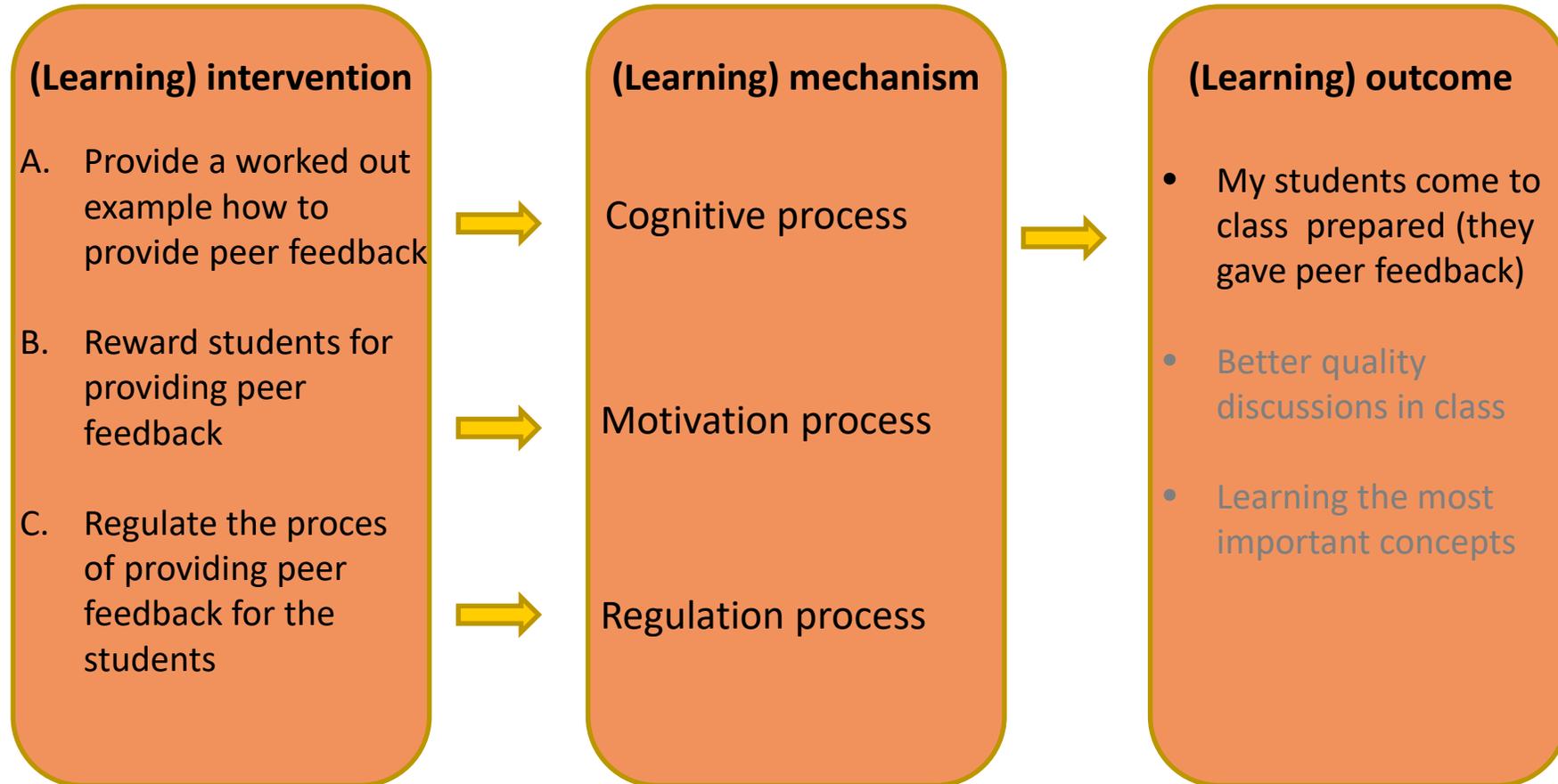
→ focus on learning outcomes  
→ focus on learning mechanism



Keep the researchable teaching question focussed!

**Step 3: Researchable teaching question**

# What data should I collect? (step 4)



# Time for some hands-on experience



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**What would your project be about?  
[or read about Mary's project]**

What do you already know?

What don't you know yet?

[Concerning Mary's project: Try to put yourself in the position of Mary and be creative with the information provided in the case. There is NOT one correct answer!]

## Opdracht 2: Uitkomsten, Mechanismen en Interventie

Think	15 min. alone	<ul style="list-style-type: none"><li>• What is your teaching question</li><li>• What type of question would that be</li><li>• What do and don't you know about the intervention, mechanisms &amp; outcomes</li></ul>
Pair	15 min with your neighbour	<ul style="list-style-type: none"><li>• Tell each other about your project and what you do and don't know.</li><li>• Ask each other questions for clarification.</li><li>• Discuss the use of the Roadmap. Is it usefull/difficult/easy/etc.</li></ul>

Time for  
some  
inspiration  
from hands-  
on experts

- Inge The  
*Quizz vs. NAB*
- Krijn Vrijsen  
*Blended inquiry based  
learning in Biomedical  
Sciences*
- Gerhard Blab  
*Correlation vs causation:  
Do my educational tweaks  
actually work?*