FORMATIVE TASKS

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WHERE AM I FROM?

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SUMMARY

- Competences
- Inductive vs. Traditional learning
- Active methodologies
- Formative assessment

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COMPETENCE: ONE DEFINITION

Capacity to use different cognitive resources to face certain situation.

Therefore, competences are a combination of knowledge, abilities, attitudes and values that will qualify the degree-holders to properly face problem solving and acting within an academic, professional or social framework

COMPETENCES ARE DEMONSTRATED WHEN ACTING WITHIN A CONTEXT

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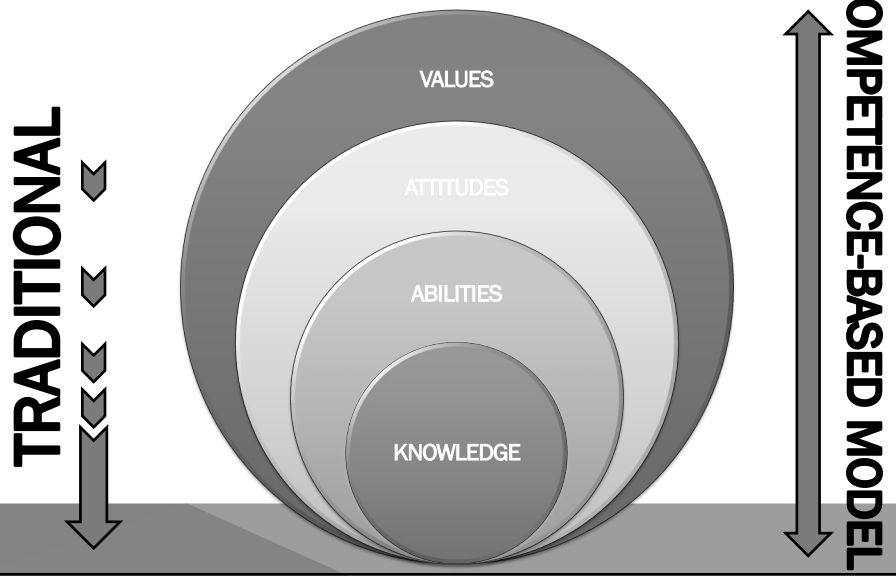
TRADITIONAL TEACHING AND COMPETENCES



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QUALIFICATIONS FRAMEWORK OF THE EUROPEAN HIGHER EDUCATION AREA (EHEA)

Dublin descriptors

(defined in 2003, adopted by Bergen conference (2005):

3 cycles (Bachelor, Master and Doctorate)

and 5 components for each cycle

- Knowledge and understanding
- Applying knowledge and understanding
- Making judgements
- Communication
- Lifelong learning skills

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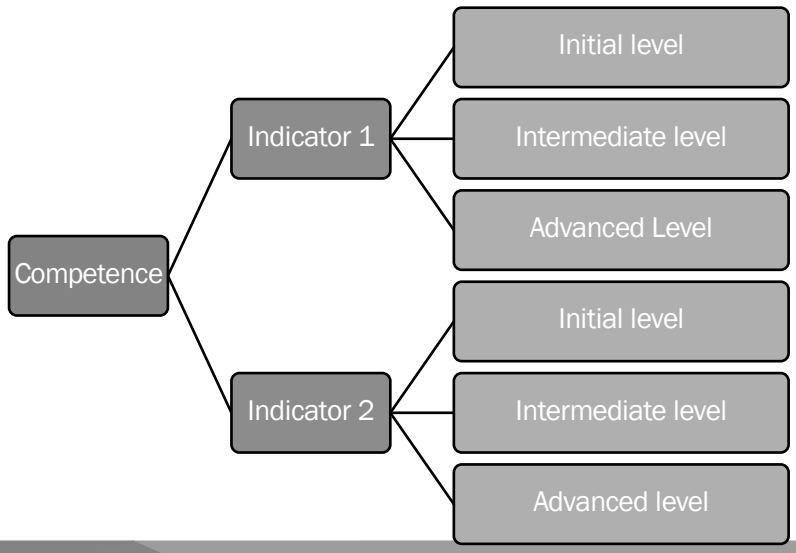
DOMAIN LEVELS



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FROM DEDUCTION TO INDUCTION

TRADITIONAL (DEDUCTIVE) LEARNING

- Direct transmission of knowledge
- Knowledge is not questioned
- Studying by reproducing
- Assessment based on reproduction
- Typical sequence (up-down): general concepts, examples, exercises

INDUCTIVE LEARNING

- Inquiry-based learning
- Knowledge is critized both by professor and students
- Studying by wondering about what happens if...? By solving real problems
- Assessment based on problem solving
- Typical sequence (down-up): problem solving, extracting general ideas

Hybrid methods

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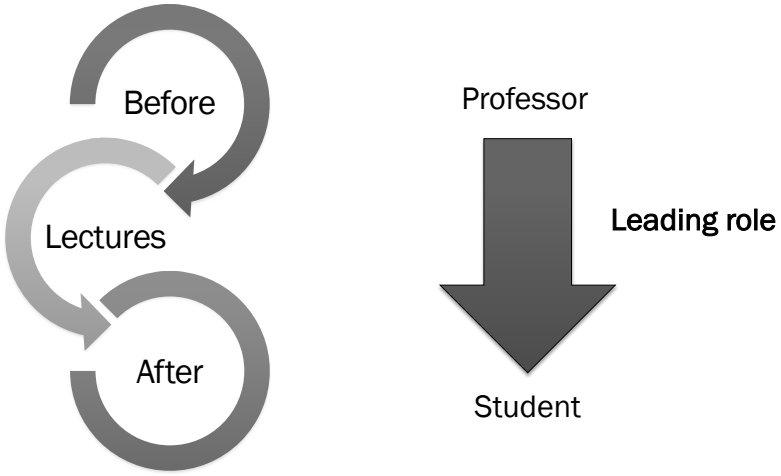
ECTS: THE NEED OF PLANNING ALL THE PROCESS



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PSYCHOLOGICAL BASIS

Social-Constructivism

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THE ROLE OF PROFESSOR

New role

- From leading role to guide, supporter and dessigner
- From non-critical to reflexive approach in the lectures
- From having answers to pose questions

New attitude

- From indisputable to controversial
- Professor's comfort and certainty is not student's interest

Placing decisions in student's hands

- Establishing rules that help students to make decisions, to communicate and to be responsible
- Contents are not the goal, teaching contents does not assure that they are assumend, students can vary the program

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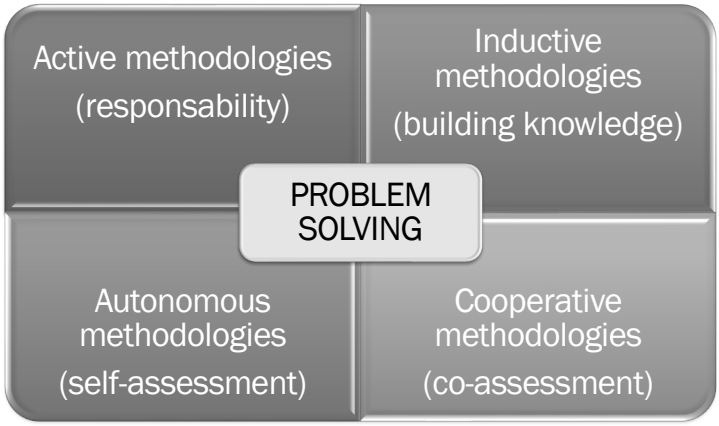
DIFFERENT METHODOLOGIES



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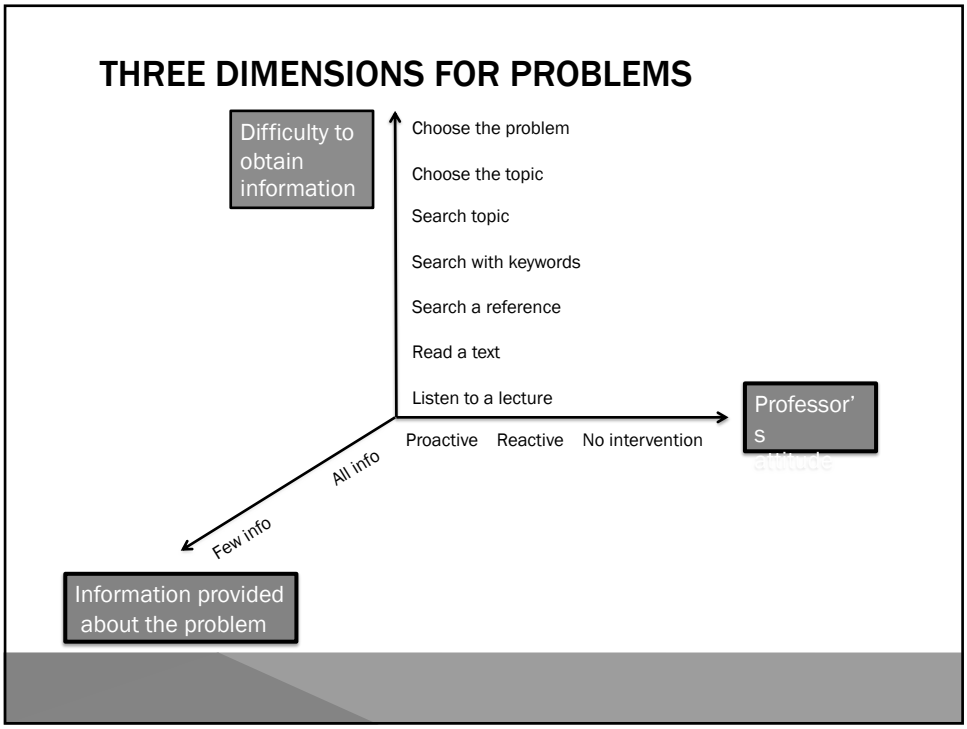
THREE DIMENSIONS FOR PROBLEMS
Difficulty to obtain information
Choose the problem
Choose the topic
Search topic
Search with keywords
Search a reference
Read a text
Listen to a lecture
Professor's attitude
Proactive
Reactive
No intervention
All info
Few info
Information provided about the problem

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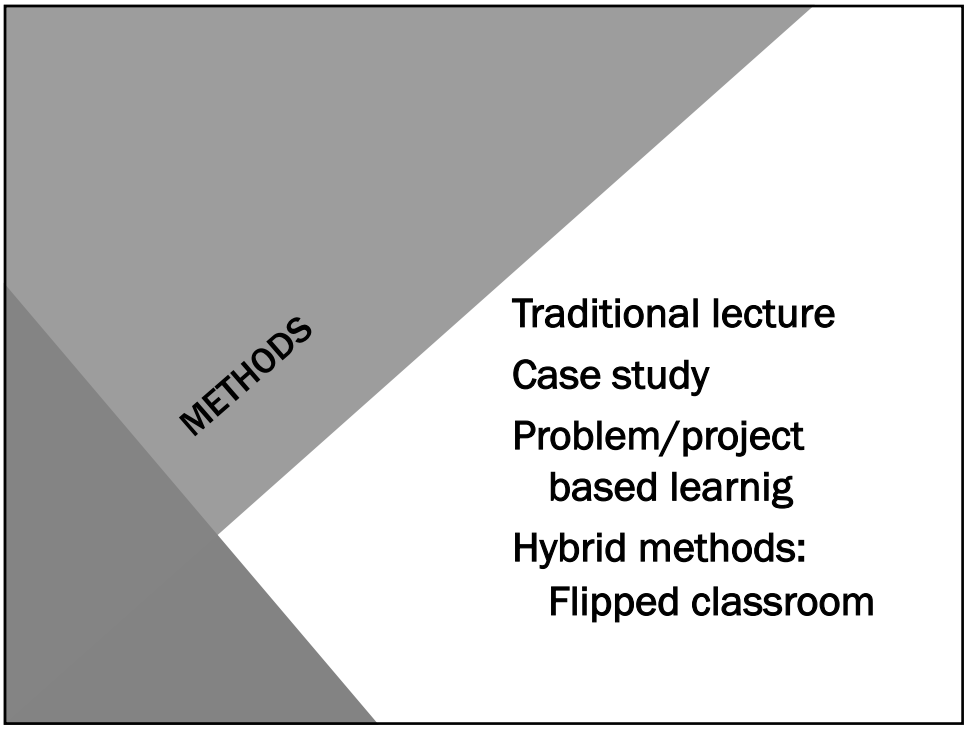
METHODS
Traditional lecture
Case study
Problem/project based learnig
Hybrid methods: Flipped classroom

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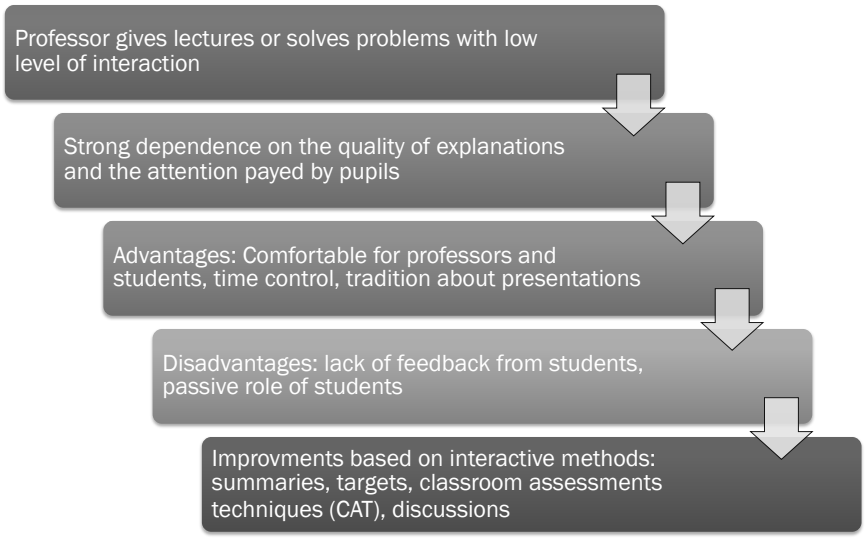
TRADITIONAL LECTURE



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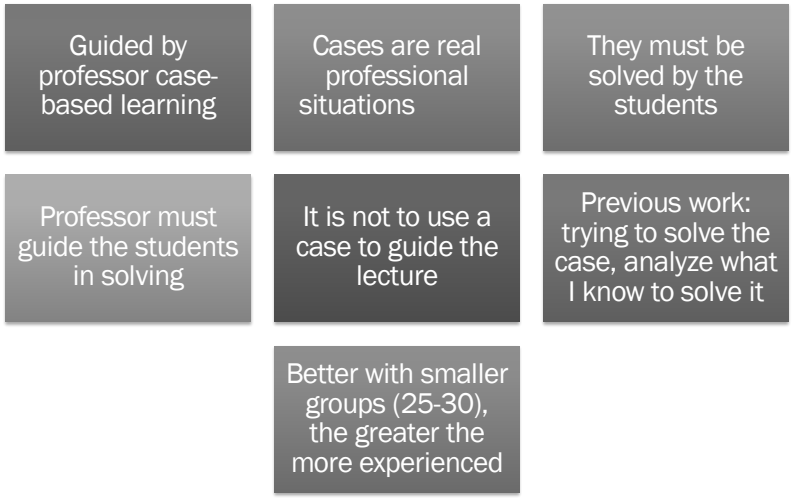
CASE STUDY



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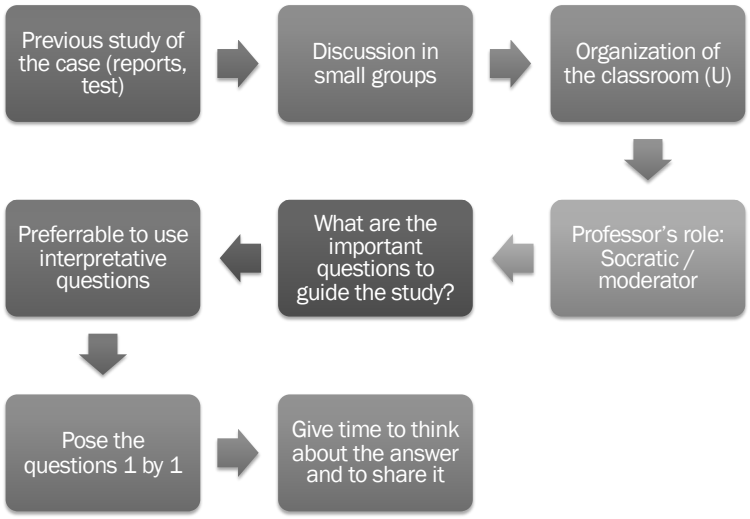
CASE STUDY: GUIDELINES



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CASE STUDY: POSING QUESTIONS

Approach	Example
Ask for a known case	Do you know a social role changing in the last 50 years?
Questions about observable facts	What are the changes in the social role of women?
Connections between what and why	Why working out of home has changed the role of women?
Main causes and interests	Why women started to work out of home?
Possible general rules	All women want to work out of home?
Possible counterexamples	All women can choose to work out of home?
Use extreme values	Why do birth rate decrease when women work ?
Sufficient and necessary causes	What is the impact of life costs?
Comparing 2 situations	Why the rate of non-qualified jobs is higher for women?
Predictions and consequences	Would women have same opportunities in next years?

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CASE STUDY: TYPES

Issue cases	Decision cases	Succesive steps
Personal response devices	Lab cases	Debates
Mock trials	Aronson puzzle	Role playing

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PROBLEM BASED LEARNING (PBL)

- Starting from an ill-defined problem, the class is divided into teams. Professor establishes some general rules
- Teams must define the problem, establish targets, organize the group dynamics
- The team must planify its own learning, researching about the problem, and extracting conclussions
- Self-directed learning: solving the problem is not the goal, but what they have to learn for solving it

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PBL: CHARACTERISTICS OF PROBLEMS

- Ill-defined: unbounded, lack of pieces
- Complex: able to be worked in a group
- Real: based on real experiences, professional frameworks
- Interesting, motivating, teasing
- Onion-shaped: more problems appear when solving them

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PBL: MAASTRICHT MODEL (UP TO 40 STUDENTS)

Initial discussion	Identifying facts
	Defining the problem
	Justifying the definition
	Identifying the needed extra information
	Identifying the research plan (what to learn), supervised by professor
Study	Research and individual study. Summaries to communicate results with the rest of the group
Report	Collecting information and discussing within the group Group self-assessment: is this enough to solve the problem? Present group's solution to the rest of students Assessment by professor or by students

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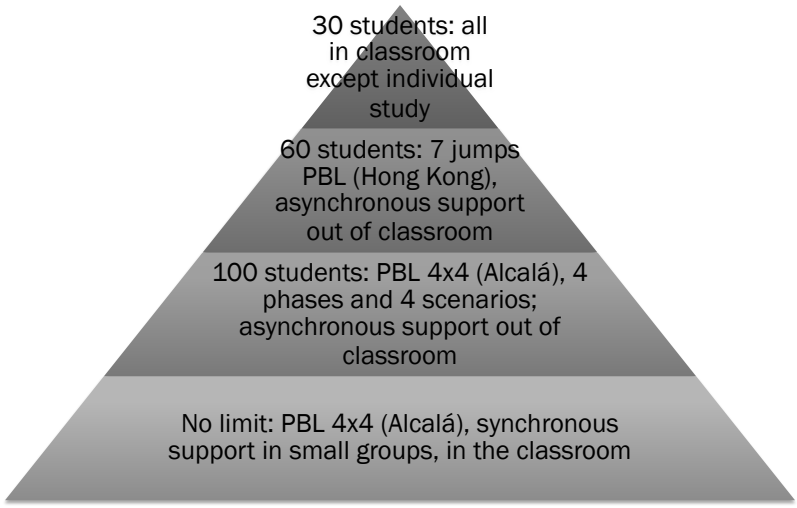
PBL: VARIATIONS ON MAASTRICHT MODEL



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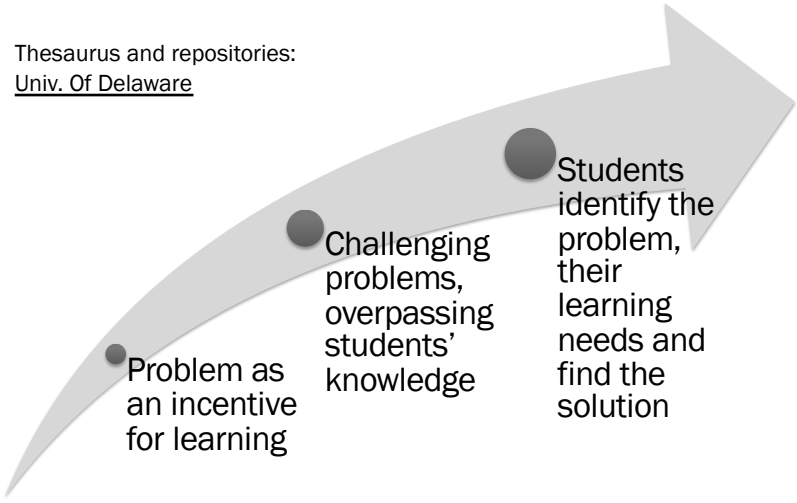
PBL

Thesaurus and repositories:
Univ. Of Delaware



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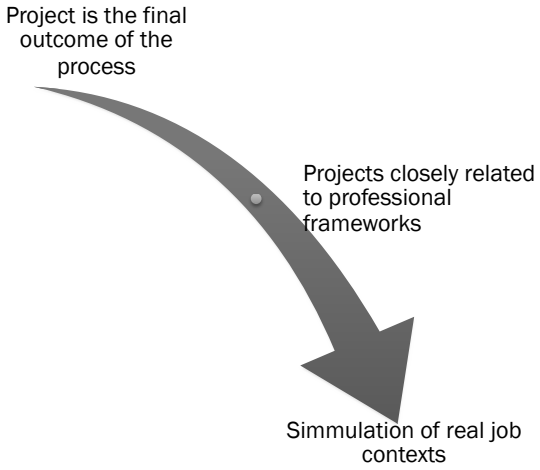
PJBL: PROJECT BASED LEARNING



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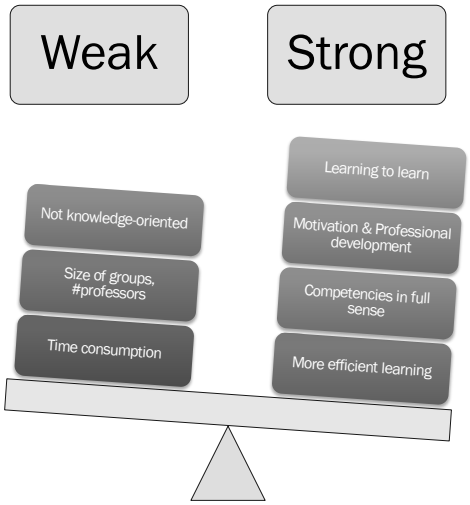
PBL: STRONG AND WEAK FACTORS



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PBL: HOW TO POSE A GOOD PROBLEM?

- What do you want your students to learn? (topic)
- What are the competences to be trained? (methodology)
- What are you going to do to motivate your students?
- How are you going to show the relevance of the problem?
- How are you going to introduce it? (bait)
- How are you controlling it?
- How are you assess it?

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PBL: HOW TO POSE A GOOD PROBLEM?

- Select the central idea, targets, contents and skills
- Select a real scenario to introduce the idea
- Look for models, write a first draft of the bait, and motivational presentation
- Development: instructions, solving stages, control, assessment
- Resources needed by the students to solve it
- Determine the abilities that the students need to train
- Plan for reaching the resources
- Documents for guiding the students during the solving stages
- Check all the process

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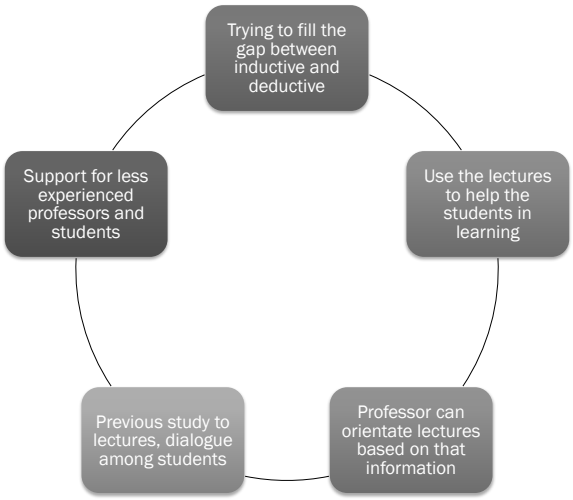
HYBRID METHODS



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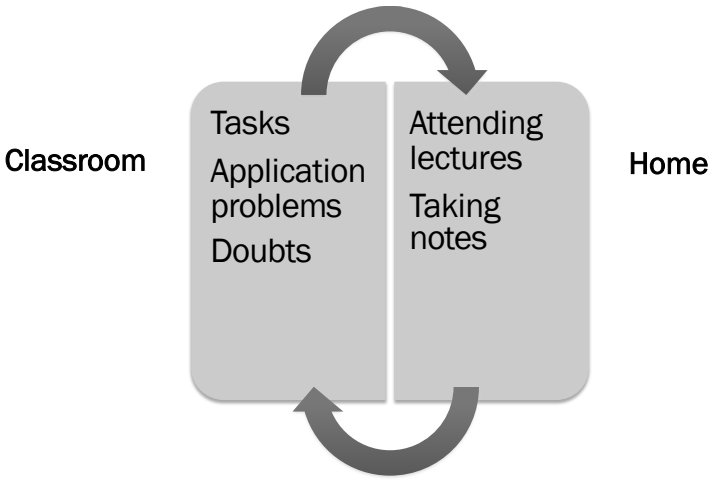
FLIPPED LEARNING



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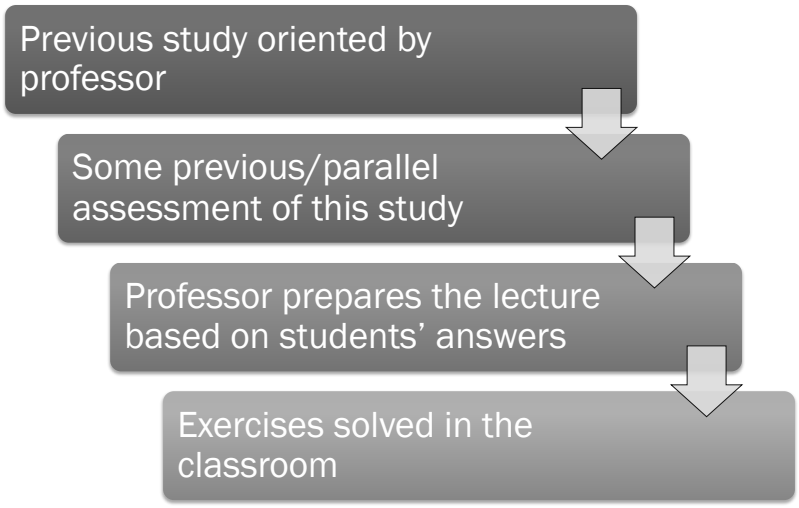
HYBRID METHODS: GLOBAL SCHEME



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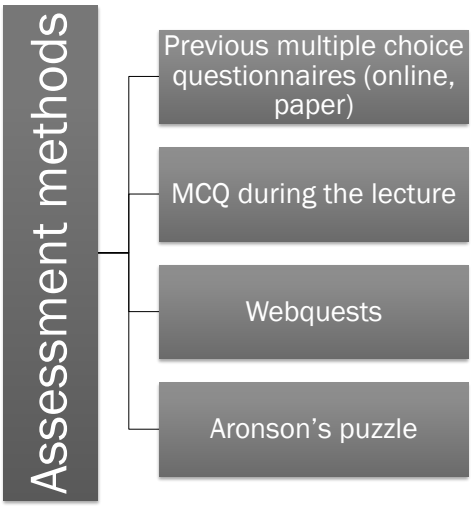
HYBRID METHODS



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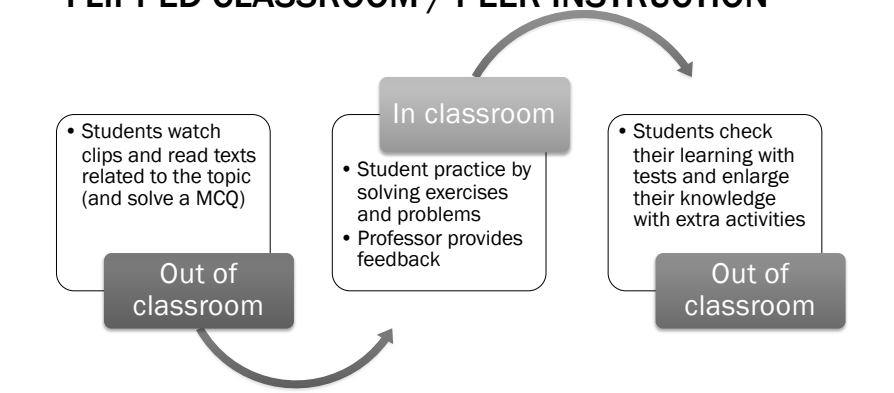
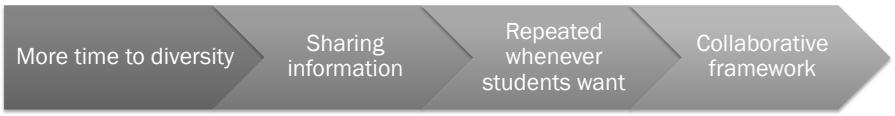
FLIPPED CLASSROOM / PEER INSTRUCTION





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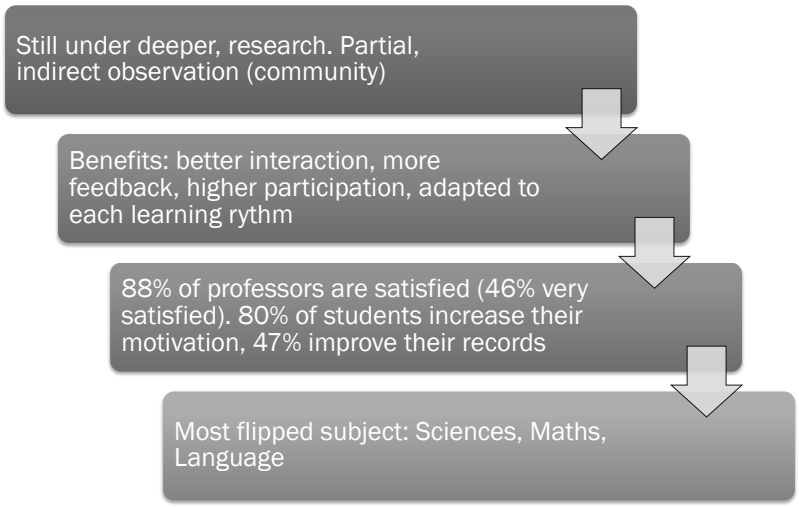
FC: EVIDENCES



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BYOD MODELS

Bring Your Own Device: students with smartphones, tablets, laptops, etc.

Easy for distractions…but many tools at your disposal:

- Social Networks (Google+)
- Blogs, wikis (Moodle)
- Clips (YouTube)
- Podcasts
- Educanon (imbedded test into a clip)
- Kahoot! (real time answers)
- Socrative (quizzes, games)

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FORMATIVE ASSESSMENT

Traditional exams
Tests, Rubrics
Co-evaluation
Self-evaluation
Feedback

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COHERENCE

If we seek to develop competencies, the evaluation must be aimed at assessing them in their entirety

DOUBLE NATURE

Formative and sumative assessment

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TRADITIONAL EXAMS

Theoretical questions or exercises

Main difficulty is how to measure (inter- or intra-) reliability and validity

It is useful for assessing contents based on knowledge and also to assess written communicative abilites.
Also for certain non complex procedures (exercises rather than problems)

Difficulties for assessing reasoning skills

Impossible assessment of solving techniques, attitudes, values, etc.

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TESTS

Vast literature about reliability and validity depending on different possibilities (number of options, number of valid answers, etc.)

In general, reliability of a test increases with diversity and coherence among possible answers

Validity is usually checked with posterior proofs

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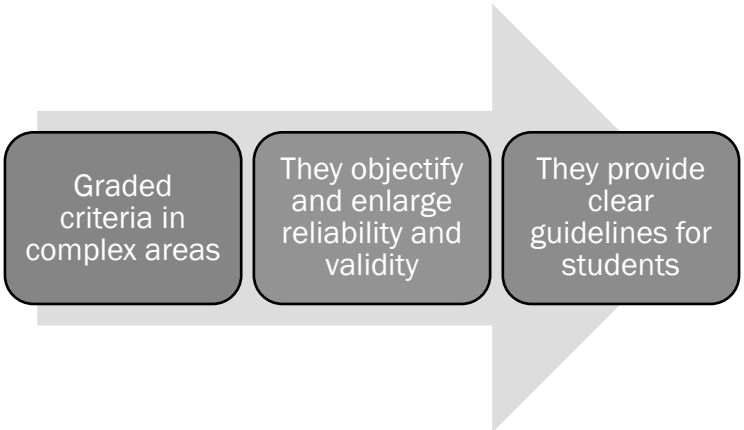
RUBRICS OR EVALUATION MATRIXES

They represent domain levels in competencies

They can be used in different environments



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RUBRICS

RELIABILITY AND VALIDITY

- High intra-judges reliability
- Intra-judges reliability lower than tests but greater than the rest of methods
- The greater degree of analysis, the higher reliability
- Similar validity to tests

EFFECTS ON LEARNING

- Increase quality of learning when students participate in their dessign
- Produce a transparent process of assessment
- Better performance when they are known previously

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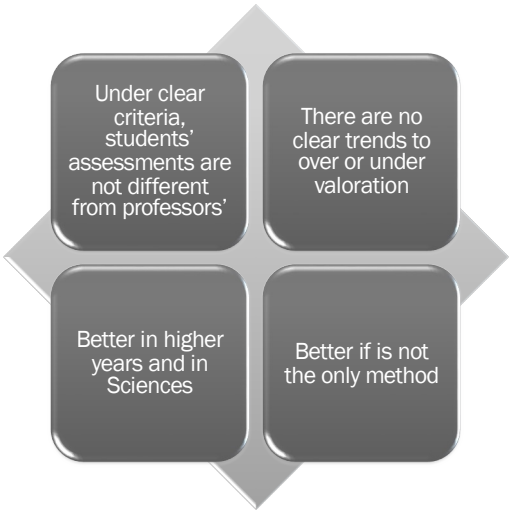
SELF-EVALUATION



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CO-EVALUATION OR PEER-EVALUATION

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THE POWER OF FEEDBACK

Feedback. Information on the evolution of the learning process: How are you doing? What are you doing well? What should you improve? What can you use?

Feed up. Information about the learning objectives (at the beginning): What are you going to learn? How are we going to do it? What are you expected to be able to do?

Feed-forward. Information on the new learning opportunities that are generated from what has been learned: What new learning can arise? What new problems can be solved? How can I apply what I have learned?

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