Problems = Solutions?!  

_Problem Based Learning (PBL) as Alternative Approach to Teaching and Learning in Higher Education_
Presentation outline

- What is PBL?
- Short History of PBL in Europe
- The Maastricht Seven Steps Model
- The Research Project on PBL at TUD
What is PBL?

In problem based learning, students collaborate to study the issues of a problem as they strive to create viable solutions. Unlike traditional instruction, which is often conducted in lecture format, teaching in problem based learning normally occurs within small discussion groups of students facilitated by a faculty tutor (Aspy, Aspy, & Quimby, 1993)
PBL in Europe

- **1960s:** Founded at McMaster University, Canada, in the field of medical education
- **1970s:** PBL at Maastricht University, The Netherlands
- **Since 1980s:** Spread across Europe, application in various disciplines
- **1990s:** Systematic Evaluation of research on the effects of PBL
- **2000s:** New relevance due to Bologna Process (student’s employability)
Core Dimensions of PBL

- **Authentic problems** as center of the learning process
- Learning takes place in **small groups**
- **Self-organization** of the group
- **Stepwise** Procedure
- Guidance through **Tutors**
The Maastricht Seven Steps

1. Clarification of terminology
2. Defining the problem
3. Analysing the problem, collection of ideas
4. Structuring / systematic inventory of ideas
5. Formulation of learning goals
6. Individual or collective research and studies
7. Synopsis and solution
Empirical Evidence

- Positive effects on 'soft' dimensions, such as self-assessed competencies and teacher ratings of students' performances (Jones et al., 2002)

- No effect or negative effect on the acquisition of knowledge, measured in 'conventional' (summative, declarative) testings (Mamede et al., 2006), but high performance in practical tests and problem solving (Colliander, 2002)

- And: high acquisition of key competencies such as interdisciplinary skills, communication and collaboration skills and management skills (see Kolmos et al. 2008)
Research Project PBL at TUD

- **Project Title:** Efficacy of problem-based learning and professional development of university teachers in three countries: Germany, Sweden and the Netherlands

- Funded by the German Ministry of Education and Sciences

- [www.hdz.tu-dortmund.de/pbl](http://www.hdz.tu-dortmund.de/pbl)
Research Objectives

- **Description** of problem-based learning scenarios and practices **across different European countries**

- Exploration of the **outcomes of PBL as a teaching method in higher education** in a cross-national design

- Exploration of **teachers’ attitudes toward teaching in PBL** and of the effects on the outcomes of problem based vs. ‘conventional’ teaching
Contact information:
pbl@hdz.tu-dortmund.de

www.hdz.tu-dortmund.de/pbl