

# **PROBLEM BASED LEARNING – INTRODUCTION AND POTENTIAL**

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**AALBORG UNIVERSITY**  
DENMARK

# PBL at Aalborg University



- University was founded in 1974 as part of a regional development strategy
- Comprises Engineering & Science; Humanities; Social Sciences; Medicine
- 17.000 students, 3.500 employees, three campuses
- Known for strong linkages with wider society (business/industry, public sector, municipalities, civil society)
- Early starter as far as use of Problem Based Learning (PBL) is concerned (see: <http://www.pbl.aau.dk/> or visit this page: <http://www.studyguide.aau.dk/aalborg-pbl-model/>)
- Hosting the UNESCO Chair on PBL, see more at: <http://www.ucpbl.net/>
- Offers a full online Master degree in Problem Based Learning in Engineering and Science (also relevant for other disciplines), see: <http://www.mpbl.aau.dk/>

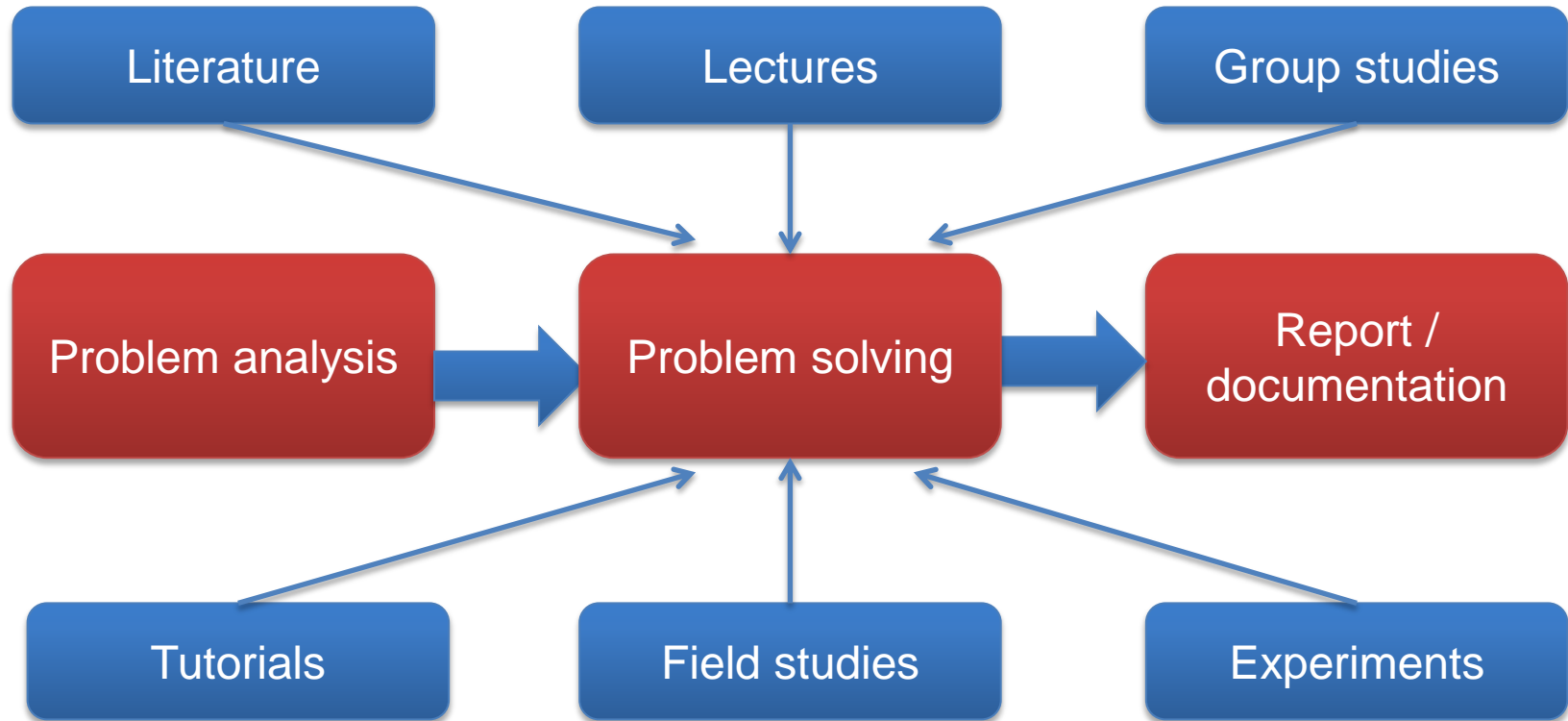


# Key ingredients in the Aalborg PBL model

- Themes (for a semester or a subject or both)
- Problem (practical, theoretical, more or less complex)
- Project (5-30 ECTS, one semester each, starting the first semester)
- Courses (general and project specific) – knowledge gained is applied in solving the problem in project
- Project group (team) (1-6 students – normally 3 to 4 depending on semester and study programme works on a selected topic)
- Supervisors facilitate and support/give advise
- Infrastructure (IT, access to literature, group rooms / meeting places, administration)
- Collaboration with external partners (industry, public sector, NGOs)

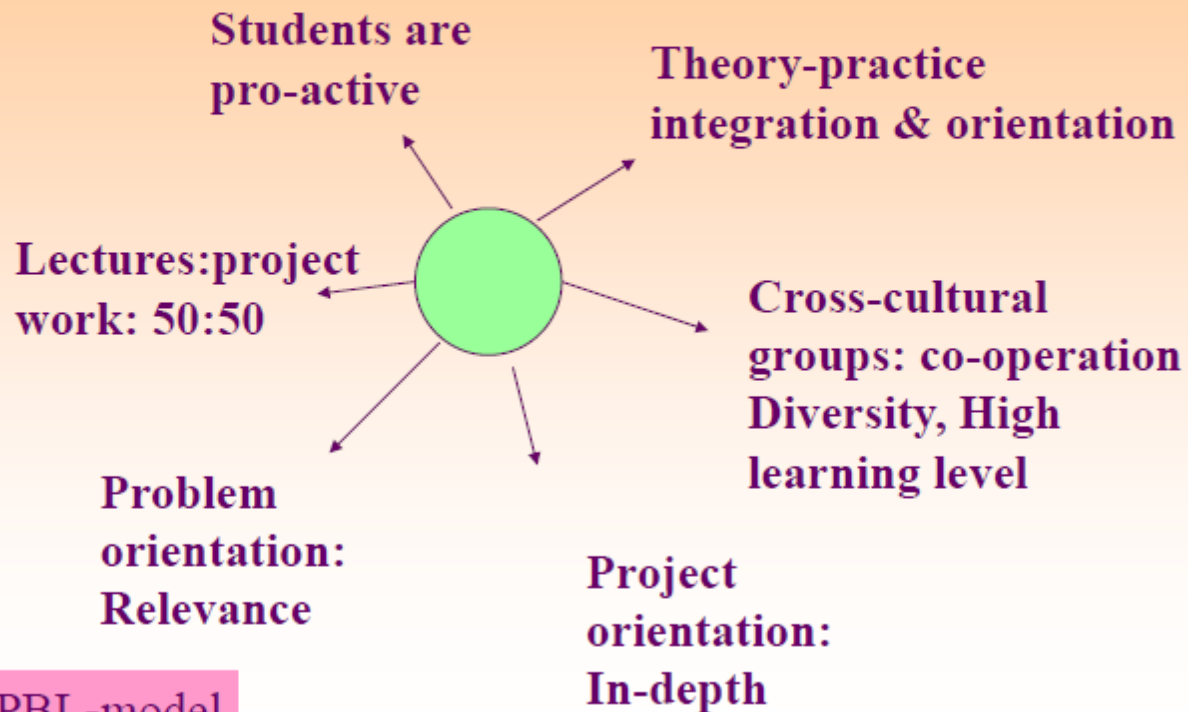


# Principle of project-organized problem-solving



Kjærdsdam & Enemark, 1994

# Pedagogical Philosophy at Aalborg University



# Where does the problem come from?

- From the students (media, course curricula, projects)
  - Strengthens student's ownership of the project
  - High degree of motivation – a driving force
- From the potential supervisors (research interests)
  - Project catalogue
- From "the outside world"
  - Companies or institutions
  - Facilitated by for instance [solutionhub.dk](http://solutionhub.dk)

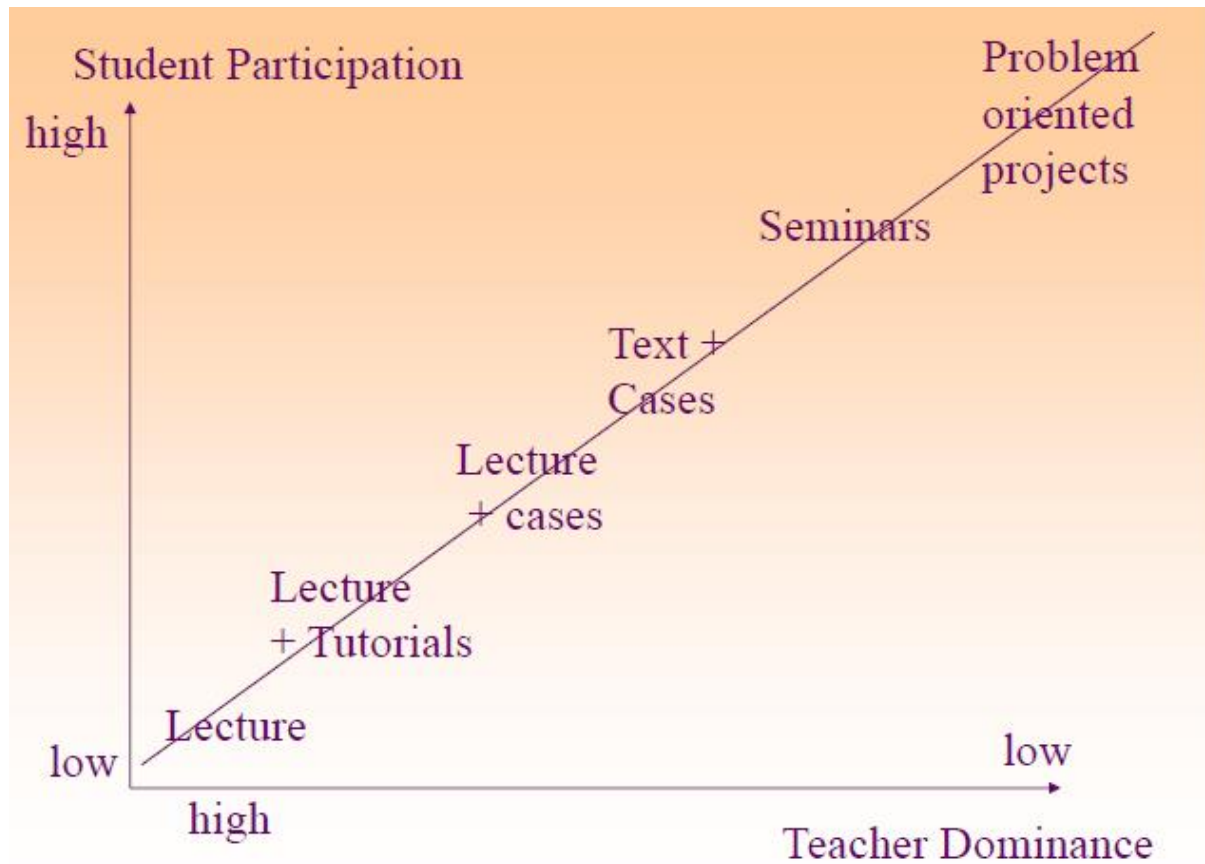


# Examples of student projects

- Development of new IT-solution for municipality in Denmark in the field of crisis management
- Development of a self-adjusting head rest to reduce problems of whiplash
- Development of intelligent thermometer (Tanzania)
- Development of technologies and organisation of future care centres for elderly people



# From re-active to pro-active students





# Some key challenges at universities in Africa

- Curricula often not responsive to real life problems and many students have knowledge of a mainly theoretical nature
- Approaches to teaching and learning do not necessarily ensure that students learn to learn
- Many graduates find it hard to find employment (informal sector growing, not diminishing)
- Mass education leading to poor quality of educations, inequity in access to quality education etc.
- Brain drain – in some countries brain drain rate up to 40%; partly caused by poor employment possibilities
- Structural challenges in Africa such as deindustrialisation and economic growth driven by private consumption, incomes from exports of "hard" commodities, aid and remittances



# Possible benefits from using PBL?

- Students become more active and motivated: PBL promotes personal responsibility for learning, inviting to self reflection – learning to learn
- Combination of theory and practise: growing insight in methods and techniques and in their use, application in new contexts
- Learning approach is “efficient”: less drop-outs; more students completing in time) and effective: learning as an interactive and social process
- High level of employability: industry and others appreciate the skills of the graduates
- (New) relevant knowledge (students, supervisors, ‘society’ (private firms and public organisations))
- Inviting to integrative and holistic thinking



# PBL – ”additional skills”

- Project management (formulation, plan, control, production and evaluation of projects).
- Methods and techniques to find and handle information and skills to analyze problems.
- Cooperation/team work (Division of work, coordination, and joint decisions).
- Conflict management (Working in groups requires mutual respect, understanding and acceptance of differences).
- Writing and presentation skills
- Cultural insights and understanding
- Enhanced language capabilities



# So why bother about PBL??

***Tell me and I will forget  
Show me and I will remember  
Involve me and I will understand  
Step back and I will act***

*(Chinese proverb)*

