

# PROBLEM-BASED LEARNING IN ENGINEERING EDUCATION



## AALBORG CENTRE FOR PBL IN ENGINEERING, SCIENCE AND SUSTAINABILITY UNDER THE AUSPICES OF UNESCO (UCPBL)

DEPARTMENT OF SUSTAINABILITY AND PLANNING  
TECHNICAL FACULTY OF IT AND DESIGN

The research group is dedicated to transforming engineering education worldwide by PBL that emphasizes contextual, collaborative, self-directed and project organized learning. The vision is to strengthen employability and educate engineers for future sustainable societies.

### RESEARCH

#### UCPBL CONDUCTS RESEARCH ON

- › Engineering Education
- › Management of Change in Higher Education
- › New teacher roles
- › Digitalised Learning
- › Education for Sustainable Development
- › STEM (Science, Technology, Engineering, Mathematics) Education
- › Professional Practice and Continuing Engineering Education

#### WHAT WE DO

Working together in teams to find sustainable solutions to technical challenges is a core competence for engineers.

Our research on PBL supports and develops these competences for our graduates.

AAU has become a beacon for educational institutions worldwide that intend to transform engineering education from a traditional learning mode to more innovative student centered learning modes.

Our most recent topic is connecting digital learning and PBL.

### EDUCATION

#### STUDY RELATED ACTIVITIES

The main study related activity of the group is teaching PBL competences to all students at the two technical faculties at Aalborg University progressively during their education.

Furthermore, internal and external staff development at Aalborg University are among the main activities.

### COLLABORATION

#### WHO BENEFITS FROM OUR RESEARCH

Engineering education institutions worldwide, companies, continuing engineering educators, schools as pipelines to engineering education as well as ministries and engineering associations.

#### EXTERNAL PARTNERS

UCPBL have an established global network with other universities and public/private institutions engaged in engineering education. Annually, International and Regional Research Symposia are held all over the world.

### PUBLICATIONS

#### IMPORTANT PUBLICATIONS

- › [Learning and Assessing Problem-Based Learning at Aalborg University: A Case Study](#)
- › [Getting a hold on the problem in a problem-based learning environment](#)
- › [Strategies for education for sustainable development - Danish and Australian perspectives](#)
- › [Hybrid Learning: An Integrative Approach to Engineering Education](#)
- › [Problem-Based and Project-Based Learning in Engineering Education: Merging Models](#)



AALBORG UNIVERSITY  
DENMARK

### KEY PROJECTS

#### PROCEED/PROCEED-2-WORK

PROCEED-2-WORK is a longitudinal study following all danish AAU students enrolled in 2010 from study to their first job.

The project addresses the transition issues occurring when finalizing engineering education and entering new engineering jobs.

#### PBL FUTURE

The overall goal for the PBL Future research project is to develop research-based directions for problem- and project-based learning (PBL) in a Digital Age.

This project will re-conceptualize how PBL could operate in new formats, based on the core principles of PBL, while exploring and developing new digital approaches that operate in and enable new hybrid PBL learning models.

### VIDEO PRESENTATION



### CONTACT

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