

UCPBL ANNUAL REPORT 2016

THE AALBORG CENTRE FOR PROBLEM BASED LEARNING IN ENGINEERING
SCIENCE AND SUSTAINABILITY UNDER THE AUSPICES OF UNESCO



United Nations
Educational, Scientific and
Cultural Organization



AALBORG UNIVERSITY

Aalborg Centre for Problem Based Learning
in Engineering Science and Sustainability
under the auspices of UNESCO



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INTRODUCTION

The Aalborg Centre for Problem Based Learning in Engineering, Science and Sustainability, under the auspices of UNESCO, (hereafter Aalborg UNESCO Centre) has the overall goal to run a global network on PBL in engineering, science and sustainability. During 2016, there has been a comprehensive portfolio of activities to pursue this goal.

An ongoing priority for the Aalborg UNESCO Centre is the **global network** with our **International Research Symposium on PBL (IRSPBL)** which is planned to take place at National University of Colombia, July 2017 and Tsinghua, October 2018. These UCPBL partnerships are among the results from a Danish Ministry funded project on establishing international networks.

Characteristic for 2016 is the broadening of the scope. With the integration of the research group on mathematics education, we have increased our focus on **STEM** (Science, Technology, Engineering and Mathematics) and the focus on lifelong learning has been

expanded as well. Therefore, work has been initiated to create partnership with other organisations working on similar STEM interest in school, high school at both the national as well as the Nordic level. Similar activities have been carried out in relation to the **employability** where we researched the transition for Danish engineering students to work in the project PROCEED-2-Work. A follow-up study has been started with partners from Aalborg University and the region of North Jutland with a focus on continuing education for engineers and scientists on qualifying

engineers for Industry 4.0. During 2017, the first **online resources** have become available and new ones will soon follow in 2017. As part of the global perspective is also the **mapping of PBL initiatives** in Africa and South America, and the first report on PBL in Chile has been published.

Besides these activities to broaden the scope, there is a long list of **on-going activities** including research the learning of PBL skills during the first-year program, on change in engineering education, on training of staff, on education for





sustainable development, and on learning in math. We have graduated five PhD students and the publication lists witness a comprehensive portfolio of research on a broad range of issues.

But 2016 has also been the year where decisions were made to make some **organisational changes**. Internally at Aalborg University, the Faculty of Engineering and Science has been divided into two faculties: Engineering and Science (ENG) with Professor Mogens Rysholt as Dean, and The Technical Faculty of IT and Design (TECH) with Professor Eskild Holm Nielsen as Dean. The TECH faculty will host the Aalborg UNESCO Centre,

however, the centre has responsibilities to both faculties and the academic staff will be responsible for the dialogue with schools and faculties. Furthermore, it was decided that UCPBL should move to **new facilities**. From August 2017, you will find the Centre at Rendsburggade 14, 9000-Aalborg C-DK.

During the year, **two advisory board meetings** have taken place with our external and internal members. The connection to UNESCO and to the networks we have represented on both the advisory board and the consultancy committee are of high value to the Aalborg

UNESCO Centre. During the year, we have connected to members from several companies, from several professional organisations on engineering education, from regions in South America, Africa, Asia and Europe. We are very grateful for all the help and support.

The activity level within the Aalborg Centre has been high, and we would like to **thank** all our members on advisory boards and consultative committees as well as our international partners and for their commitment, support and advice. Without this interaction and support, we would never have achieved the goals.

GLOBAL NETWORK

The development of a global network on PBL is one of the core activities of the Aalborg Centre. The objectives of the global network are to bring researchers, teachers, practitioners, companies and policymakers together to share knowledge and experiences on how to utilize PBL in the development of engineering and science education. To fulfil these objectives, the global network task force organised and hosted several activities, namely:

The Aalborg UNESCO Centre has received a grant from the Danish Agency for Science, Technology and Innovation, Ministry of Higher Education and Science, in order to initiate **closer collaboration** with institutions in **China** and **Brazil** especially on PBL and innovation. In May 2016, a delegation from Aalborg UNESCO Centre has been in **Beijing** visiting the Centre for Engineering Education at Tsinghua. In China, we had the chance to participate in an UNESCO meeting with all category 2 centres in the UNESCO Science section.

In September, a delegation visit PUC-Rio in **Rio** and USPI in **Sao Paulo**, Brazil and we had the pleasure to establish collaboration with the PAN-American PBL network. These visits have been very constructive and new appointments have been made both in relation to the coming IRSPBL 2017 in **Bogota** for further collaboration with Brazilian partners and a new IRSPBL 2018 at Tsinghua, October 2018. Re-visits from both Brazil and China took place during April and October.

The planning for the coming **IRSPBL 2017 symposium** has been undertaken which will be held at Universidad Nacional de Colombia, Bogota, in July, 2017. This is the first time that we have the pleasure of holding the symposium in **South America**. It is



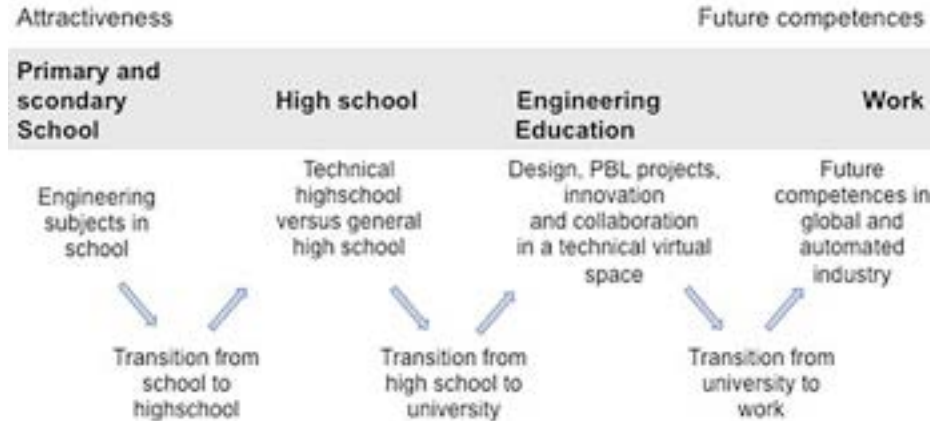
a clear policy that we always want to team up with other global organisations for the IRSPBL conferences. In 2015, we coordinated our IRSPBL with ALE (Active Learning in Engineering) and PAEE (Project approaches in Engineering Education) and in 2017, we are back coordinating with REEN (Research on Engineering Education Network) who will have their symposium at Universidad de Los Andes just after the IRSPBL 2017. Associate Professor Fernando Rodriguez from Universidad Nacional de **Colombia** has been joining us for the last year to work on the IRSPBL.

INCREASED FOCUS ON STEM

During 2016, the Aalborg Centre has focused on STEM as a **broader approach** compared to engineering and science education at university level. Even if the number of enrolled engineering students has increased, the future need for engineers and scientists in 10 years' time is still a problem. A need exists for more research and documentation in this area, especially on the transition issues from one school level to the next. The Aalborg Centre initiates research at all stages in the pipeline.

The UNESCO centre is active in the Danish National STEM strategy group, and has a close collaboration with the local unit of the ASTRA centre (**Centre for**

Science, Technique and Health). ASTRA is seated on the same address as the Aalborg Centre, and we work on joint projects on sustainable



innovation and entrepreneurship throughout the educational systems.

The UCPBL project portfolio already includes **STEM projects**. One example is the project "Learning in reality" with the aim of strengthening secondary schools pupils' interest in climate and science and developing science teaching in a PBL approach where teaching in classroom is integrated with practical learning outside

school. This is done through new forms of cross-institutional networks.

During the year, we have intensified focus on STEM through several **research applications** both at a Nordic and a National level.

STRENGTHENING THE EMPLOYABILITY PERSPECTIVE

The PROCEED-2-Work research project has been continued through external and internal funding and research results available are now on the **transition from education to work**, reported in articles and reports. This project is a follow up of a completed project, funded by the Danish Strategic Research council: PROCEED (**Programme of Research on Opportunities and Challenges in Engineering Education in Denmark**). An interesting aspect of this is to analyse the importance of PBL for Danish Engineering students in their preparation for work. **PROCEED-2-WORK** focuses on the Danish engineering students' expectations of a coming labour and follow them into the labour market to cover their experiences in the transition from education to work.

Data were collected in 2015 just before graduation as engineers and in 2016 data were collected after graduation where most of the graduates were in jobs. The focus of the study was: 1) identification of the **expectations** of working life and their perceived **readiness** in both technical professional and generic competences, 2) expectations for the future profession, 3) identification of elements in the education and elsewhere which have contributed to the working life readiness 4) **engineering skills development** in innovation, entrepreneurship and opportunities for change. The 2016 data collection and analysis was financed by UNESCO Aalborg Centre and the Faculty for Engineering and Science at Aalborg University, the COWI foundation, The Ramboell foundation and Siemens.

The PROCEED-2-Work project has also given **inspiration to new projects** on the need for competences in Industry 4.0. Together with Department for Production, we have received a grant for a pre-study on planning of future competences in this area from EU Regional funds.

Internally, we have received grants for conducting studies on retention and the first reports and articles are available from the 2015 cohort. As PBL always has been pointed as the solution to increased **retention**, it is quite important to study the mechanisms for an increased retention in the AAU PBL educations. In 2016, a new cohort study has been started based on the results from 2015.

MAPPING STUDIES ON PBL IN AFRICA AND SOUTH AMERICA

To facilitate changes in engineering and science education, we have to **understand mechanism for educational development** in different regions. Therefore, mapping studies have been established for two different regions so far, South America and Africa with a focus on learning models and innovation in education.

In 2016, the mapping of innovation and student centred learning in **Chile** has been accomplished which witness the need for both top-down and bottom up strategies at a national level.

The mapping study is focusing on selected engineering schools that have achieved positive and wellregarded educational change, it explores the drivers, facilitators and barriers to engineering education reform across Chile. **Case studies** of engineering education reform from



across Chile were also highlighted. The study draws on one-to-one interviews as its primary evidence-gathering tool, targeting change leaders, senior university managers, engineering faculty, policy makers and other stakeholders

supporting or observing educational change in engineering in Chile. The interview data were complemented by a **snapshot literature search and review**, to identify pre-existing evaluations or documentation relating to engineering education reform in Chile.

The mapping study on PBL in Africa will build on the experiences from the **Building Stronger Universities (BSU) project** on E-learning and Problem Based Learning (PBL), funded by DANIDA (2014-2016). Research and teaching resources from three Danish Universities are used to support three universities and one university college in **Tanzania** and two universities in **Ghana** to build up their competences in teaching in these two areas through a range of activities.

GRADUATION OF PHD STUDENTS

The following PhD students defended and were awarded with PhD degrees:

Jette Reuss Schmidt with thesis "Neoliberal Management of Grade Schools and Teacher Training since the Millennium";

Jin Xi with thesis "A Book of Changes in Engineering: On Becoming a Good Engineer in China";

Annette Grunwald with thesis "The attractiveness of sciences and engineering education – from an inter-organizational learning perspective";

Ron Ulseth with thesis "Self-Directed Learning in PBL";

Bart Johnson with thesis "Study of Professional Competency Development in a Project-Based Learning (PBL) Curriculum".

UCPBL would like to thank all PhD students for the collaboration during their studies. We look forward to future collaboration.



TRAINING AND DISSEMINATION ACTIVITIES

The Aalborg PBL model inspires educators around the world. Each year, many of them come to **visit** Aalborg and our centre. In 2016, UCPBL carried out 10 visits. Twice a year, once during spring and once during autumn, a visitor's **workshop** is organised to accommodate the needs of these visitors. Several visitors have expressed their satisfaction with these workshops and some have asked for an **extended program** with more detailed information. Our Visitor Workshops held in 2016 took place on 17-18 March and 6-7 October, with participants from Kuwait, Brazil, Italy, Colombia, Vietnam, Lithuania, Israel, Spain, Chile, and Austria. Our Visitor Workshops in **2017** will take place on **27-28 March and on 26-27 October**.

Throughout the year, several workshops have been held in relation to conferences and by special invitation. 7 international invited **keynotes** were given and UCPBL staff was represented in 15 conferences all over the world. In the DANIDA project Building Stronger Universities, the Aalborg Centre has been involved in an intensive training effort at African universities both for staff as well as for PhD students.



As part of the Aalborg UNESCO Centre's global activities, it is a purpose to develop **free online resources**. This has been one of the core activities in the global network and it is with pleasure that we can start offering these resources on **PBL and sustainability**. During 2015-16, learning material combining PBL and sustainability have been developed and is now offered for free.

It is the Shanzu case which on one side provides video, interview, and other material from an institution in **Kenya** where water and electricity have been installed and improved, and on the other

side provides academic material on using PBL in a learning setting combined with analytical sustainability approaches. Together with the material, a **teacher guide** provides the guidance on how to use the material. During 2017, more online resources will be developed and it is with pleasure that the Aalborg UNESCO Centre accomplishes one of the global goals

SELECTED PUBLICATIONS

Outreach and attractiveness: a never ending story or a new approach? Gumaelius, Lena B.; Kolmos, Anette. In European Journal of Engineering Education, Vol. 41, Nr. 6, 27.09.2016, s. 585-588.



PBL in the School System, Kolmos, Anette. Pre-university Engineering Education. Sense Publishers, 2016. s. 141-153.

Response strategies for curriculum change in engineering. Kolmos, Anette; Hadgraft, Roger; Holgaard, Jette Egelund. In: International Journal of Technology and Design Education, Vol. 26, Nr. 3, 08.2016, s. 391-411.

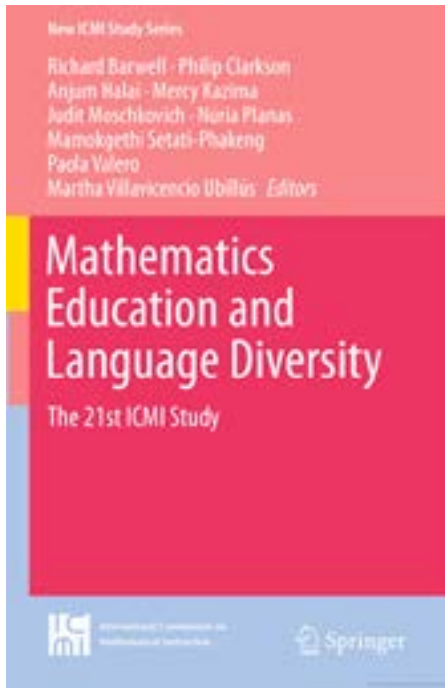
Strategies for education for sustainable development – Danish and Australian Perspectives. Holgaard, Jette Egelund; Hadgraft, Roger; Kolmos, Anette; Guerra, Aida. In Journal of Cleaner Production, Vol. 112, No. 4, 2016, p. 3479-3491.

Students' Experiences of Change in a PBL Curricula. Dahl, Bettina; Holgaard, Jette Egelund; Hüttel, Hans; Kolmos, Anette. In International Journal of Engineering Education, Vol. 32, No. 1(B), 2016, p. 384-395.

A bottom-up strategy for establishment of EER in three Nordic countries: the role of networks. Edström, Kristina; Kolmos, Anette; Malmi, Lauri; Bernhard, Jonte; Andersson, Pernille. In European Journal of Engineering Education, 2016.

Enhancing Critical Thinking in a PBL environment. Guerra, Aida; Holgaard, Jette Egelund. In International Journal of Engineering Education, Vol. 32, No. 1(B), 2016, p. 424-437.

When Students take the lead. de Graaff, Erik; Holgaard, Jette Egelund; Bøgelund, Pia; Spliid, Claus Christian Monrad. (Re) Discovering University Autonomy: The Global Market Paradox of Stakeholder and Educational Values in Higher Education. red. / Romeo Turcan; John E. Reilly; Larisa Bugaian. Palgrave Macmillan, 2016. s. 125-135.



Engineering Mathematics in Context: Learning University Mathematics through Problem Based Learning. Ravn, Ole; Henriksen, Lars Bo. In International Journal of Engineering Education, 2016.

From concept to reality in implementing the Knowledge Triangle. Sjoer, Ellen; Nørgaard, Bente; Goossens, Marc.

In European Journal of Engineering Education, Vol. 41, Nr. 3, 2016, s. 353-368.

Teacher in a problem-based learning environment: Jack of all trades? Dahms, Mona Lisa; Spliid, Claus Christian Monrad; Nielsen, Jens Frederik D. In European Journal of Engineering Education, 2016.

Discussions in PBL Project-Groups: Construction of Learning and Man aging. Spliid, Claus Christian Monrad. In International Journal of Engineering Education, Vol. 32, Nr. 1 (Part B), 2016, s. 324-332.

Developments in Engineering Education and Engineering Education Research in Europe. De Graff, Erik, Advances in Engineering Education in the Middle East and North Africa. red. Mahmoud Abdulwahed; Mazen O. Hasna; Froyd Jeffrey E. Springer Publishing Company, 2016.

Mathematics Education and Language Diversity – The 21st ICMI Study. Barwell, Richard; Clarkson, Philip; Halai, Anjum; Kazima, Mercy; Moschkovich, Judit; Planas, Nuria; Setati, Mamokgethi; Valero, Paola; Villavicencio, Martha. New York : Springer Science+Business Media B.V., 2016.

Tracing Translations of ICT Policies in Higher Education. Cifuentes Alvarez, Gary Alberto; Duenas, Paola Ximena Valero. In Education Policy Analysis Archives, Vol. 24, No. 28, 2016; p. 1-24.



STAFF AND BOARD MEMBERS

ACADEMIC STAFF



Anette Kolmos
Director, Professor



Erik de Graaff
Professor



Lars Bo Henriksen
Professor



Tony Marjoram
Guest Professor



Roger Hadgraft
Professor, RMIT,
Adjunct Professor



Jette Egelund Holgaard
Associate Professor



Mona Dahms
Associate Professor



Bettina Dahl Søndergaard
Associate Professor



Pia Bøgelund
Associate Professor



Aida Guerra
Assistant Professor



Claus Spliid
Teaching Associate
professor



**Steen Hyldgaard
Christensen**
Associated Adjunct
Professor



Stine Bylov
Research Assistant



Hanan Lassen Zakaria
Visiting Lecturer



Paola Valero
Professor



Ruth Graham
Guest Associate
Professor



Bente Nørgaard
Assistant Professor



**Fernando
Rodriguez Mesa**
Guest Researcher

During 2016, the following defended and were awarded with Ph.D. degrees: Jette Reuss Schmidt, Annette Grunwald, Ron Ulseth and Bart Johnson

In 2016, the following Ph.D. students are enrolled and writing their thesis: PhD Students: Christina Madsen, Hashim Bin Mohamad, Kjell Staffas, Concetta Ianiello. Aldo Parra-Sánchez, Alex Montecino Muñoz and Melissa Andrade-Molina.

ADMINISTRATIVE STAFF



Marianne Nyborg
Head of Division



Morten Andersen
Senior Clerc



Anni Møller Brændstrup
Senior Secretary



Mia Christensen
Senior Secretary

ORGANISATION

The Aalborg UNESCO Centre is managed by an advisory board supported by a consultative committee and a management board. In 2016, these consisted of the following members:

Advisory Board:

Dean, the Faculty of Engineering and Science, Aalborg University, Eskild Holm Nielsen (Chair)

Dean, the Faculty of Engineering and Science Aalborg University Mogens Rysholt Poulsen

Representative of UNESCO:

Professor Flavia Schlegel, Assistant Director-General, For Natural Sciences UNESCO

Dr. Salvatore Aricó, Senior Programme Specialist, UNESCO Paris

UNESCO member states:

Vice Chancellor, Professor William Otoo Ellis, KNUST Ghana

Professor and President of the Chinese Society of Education, Zhong Binglin, Beijing Normal University

Former Vice Chancellor of the Peninsula Technikon, Brian Figaji, Vice President of

the Engineering Council of South Africa and member of the UNESCO Executive Board for South Africa

Aalborg University:

Head of School, Henrik Brohus

Head of PhD School, Jes Vollertsen

Head of Department, Tine Herreborg Jørgensen

Professor Erik de Graaff

Professor Tony Marjoram

Professor Anette Kolmos

Consultative Committee:

The Aalborg Centre has established a consultative committee involving around 40 wide-ranging specialists in PBL,

sustainability, engineering and science education from academia, industry and professional organisations around the world. For the list of members please see: <http://www.ucpbl.net/about/organisation/consultative-committee/>

Management Committee:

Our internal AAU management committee consists of the leaders of the different task forces and AAU representatives across the engineering and science departments and schools. For members of the Management Committee please see:

<http://www.ucpbl.net/about/organisation/managementcommittee/>



RESEARCH PROJECTS

MAPPING ENGINEERING EDUCATION
REFORM IN CHILE

OUTREACH - FROM PRIMARY SCHOOL THROUGH
SECONDARY EDUCATION TO CONTINUING EDUCATION –
PROBLEM-BASED LEARNING IN LIFE-LONG LEARNING

EVALUATION OF THE AALBORG
UNIVERSITY PBL MODEL

EVALUATION OF THE
PROJECT EXAM

MATHEMATICS TEACHING AND
LEARNING IN HIGHER EDUCATION

INSTITUTIONAL CHANGE
STRATEGIES TO PBL AND ESD

INTEGRATION OF SUSTAINABLE DEVELOPMENT
IN ENGINEERING EDUCATION

EXTERNAL FOUNDED PROJECTS

PBL CASE SHANZU

PROCEED-2-WORK

UNESCO PROFESSORSHIP

WORK BASED LEARNING IN INDUSTRIAL ENGINEERING

LEARNING IN REALITY

OTHER PROJECTS

TOMSK, TOMSK POLYTECHNIC UNIVERSITY

VELUX 2013-2014 GUEST PROFESSORSHIP

PROCESSES ON HANDLING CUSTOMIZED
POSTGRADUATE COURSES

RETENTION AND DROP OUT AMONGST
1ST YEAR BACHELOR STUDENTS AT THE
FACULTY FOR ENGINEERING AND SCIENCE

BSU E-LEARNING AND PBL PROJECT 2014 – 2016

FOR A MORE DETAILED OVERVIEW, PLEASE GO TO:

PARTICIPATION IN INTERNATIONAL CONFERENCES, WORKSHOPS, AND RESEARCH MEETINGS

29 MARCH

**ALIGNMENT AND DIFFERENT ATTITUDES
TO THE GROUP EXAM AMONG
ENGINEERING AND SCIENCE STUDENTS**

Institution and Country:
Copenhagen Business School, Denmark

Participants: Bettina Dahl

17-18 MAY

**DUN CONFERENCE 2016
- "LEADERSHIP, DEVELOPMENT
AND SURVIVAL AT THE UNIVERSITY"**

Institution and Country:
Danish University Pedagogical Network, Denmark

Participants: Claus Spliid

10-13 MAY

TSINGHUA UNIVERSITY, BEIJING

Country:
China

Participants:
Anette Kolmos, Tony Marjoram

17-20 MAY

**15TH WORLD CONFERENCE
ON CONTINUING ENGINEERING EDUCATION**

Institution and Country:
The University of Porto, Portugal

Participants:
Bente Nørgaard

18 MAY

**UNESCO SCIENCE CENTRES
COORDINATION MEETING**

Institution and Country:
UNESCO Paris, France

Participants:
Anette Kolmos

7 JULY

THE PAEE/ALE CONFERENCE 2016

Institution and Country:
Portugal

Participants:
Anette Kolmos, Claus Spliid,
Fernando Rodriguez

22-24 JUNE

**CRITICAL EDGE ALLIANCE CONFERENCE 2016
- "INNOVATIVE AND CRITICAL APPROACHES TO
HIGHER EDUCATION IN THE 21ST CENTURY"**

Institution and Country:
Roskilde University, Denmark

Participants: Claus Spliid

3-12 JULY

**CONFERENCE AT UNIVERSITY OF SOUTH WALES,
PONTYPRIDD CAMPUS**

Institution and Country:
University of South Wales, Pontypridd Campus, UK

Participants:
Pia Bøgelund

12-15 SEPTEMBER

**ENGINEERING EDUCATION FOR SUSTAINABLE
DEVELOPMENT (EESD)**

Institution and Country:
Bruges, Belgium

Participants:
Jette Egelund Holgaard

8-10 SEPTEMBER

PAN/PBL

Institution and Country:
Sao Paolo, Brazil

Participants:
Anette Kolmos, Claus Monrad Spliid,
Fernando Rodriguez

6 SEPTEMBER

PUC-RIO

Institution and Country:
Rio de Janeiro, Brazil

Participants:
Anette Kolmos, Claus Monrad Spliid,
Fernando Rodriguez

12-15 SEPTEMBER

SEFI 2016

Institution and Country:
Tampere University of Technology, Finland

Participants:
Bente Nørgaard, Jette Egelund Holgaard,
Erik de Graff

13 SEPTEMBER

**THE INTERNATIONAL ASSOCIATION FOR
CONTINUING ENGINEERING EDUCATION (IACEE)
EXECUTIVE MEETING**

Institution and Country:
University of Porto, Porto, Portugal

Participants: Bente Nørgaard



1 DECEMBER

CONFERENCE ON FUTURE EDUCATION

Institution and Country:
The Confederation of Danish Enterprise, Denmark

Participants:
Anette Kolmos



INVITED KEYNOTES, LECTURES AND ROUND TABLES

14 JANUARY

**INVITED KEYNOTE, "2030 ENGINEERING
STRATEGY"**

Country:
Chile

Erik de Graff

13 MAY

**INVITED KEYNOTE, SEMINAR ON PRINCIPLES AND
EXPERIENCE DIVIDING STUDENTS IN MATHEMATICS
AT UPPER SECONDARY LEVEL, VIBORG GYMNASIUM**

Country:
Denmark

Bettina Dahl

5 APRIL

**INVITED KEYNOTE AT THE PBL ACADEMY SEMINAR,
EXPLORING INTERCULTURAL COMPETENCIES IN
RELATION TO PBL**

Country:
Aalborg, Denmark

Aida Guerra

15 JUNE

**INVITED KEYNOTE AT THE PBL 2016 CONFERENCE
PROMOTING SKILLS**

Country:
Switzerland

Anette Kolmos

7 JULY

INVITED KEYNOTE AT THE PAEE/ALE CONFERENCE

Country:
Portugal

Anette Kolmos

5-6 OCTOBER

INVITED KEYNOTE ON "THE PRINCIPLES AND PRACTICES OF PBL AT AALBORG UNIVERSITY", AT THE UNIVERSITY OF APPLIED SCIENCES, BRANDENBURG

Country: Germany

Bettina Dahl

8-10 SEPTEMBER

INVITED KEYNOTE AT PAN/PBL

Country:
Brazil

Anette Kolmos



WORKSHOPS

During 2016, Aalborg Centre academic staff organized and ran several workshops on PBL, Engineering Education and Sustainability. Some of these workshops were run at Aalborg while others were invited workshops and run outside Aalborg and in collaboration with other organizations, namely in internal conferences.

17-18 MARCH

VISITORS' WORKSHOP – SPRING 2016

Institution and Country: AAU, Aalborg, Denmark

Run by:

Anette Kolmos; Erik de Graaff; Claus Spliid;
Bettina Dahl; Lars Bo Henriksen;
Mona-Lisa Dahms; Concetta Ianiello

8 SEPTEMBER

PAN/PBL WORKSHOP AT THE UNIVERSITY OF SAO PAULO

Institution and country:
the University of Sao Paulo, Brazil

Run by:
Claus Spliid

18 MARCH

WORKSHOP ON PROBLEM BASED LEARNING AND HOW IT RELATES TO RRI (RESPONSIBLE RESEARCH AND INNOVATION)

Institution and Country:
CosmoCaixa Science Museum, Spain

Run by: Mar Carrió, Bettina Dahl

6-7 OCTOBER

VISITORS' WORKSHOP – FALL 2016

Institution and Country: AAU, Aalborg, Denmark

Run by:

Anette Kolmos; Erik de Graaff; Claus Spliid;
Bettina Dahl; Lars Bo Henriksen;
Mona-Lisa Dahms, Concetta Ianiello

VISITS ARRANGED BY THE AALBORG CENTRE

28 NOVEMBER

WORKSHOP ON GROUP EXAMS AT AALBORG UNIVERSITY

Institution and country:
LearningLab DTU,
Technical University of Denmark

Participants: Bettina Dahl



Every year, the UCPBL hosts visitors. This year, UCPBL has been responsible for organizing 10 visits at the Aalborg Centre.

DATES	INSTITUTION, COUNTRY
1 February	Universidad Nacional de Colombia, Colombia
17-18 March	Universidad Nacional de Colombia, Colombia UNISAL Aalborg University Duy Tan University Australian College of Kuwait, Kuwait
11 April	National University of Singapore
25-27 May	University Sao Oaulo and PUC, Rio de Janeiro, Brazil
24 June	Australian College of Kuwait
24-25 August	Dassault Systemes, France
9 September	Gulu University, Uganda
6-7 October	Australian College of Kuwait University of Genoa, Italy ORT Braude College, Israel Universidad Europea, Spain Universidad Diego Portales, Chile
10-12 October	Tsinghua University, Beijing, China
27-28 November	UNESCO, Paris

PUBLICATIONS

1. **A bottom-up strategy for establishment of EER in three Nordic countries : the role of networks.** / Edström, Kristina; Kolmos, Anette; Malmi, Lauri; Bernhard, Jonte; Andersson, Pernille.
I: European Journal of Engineering Education, 03.06.2016.
Publikation: Forskning - peer review» Tidsskriftartikel
2. **Faculty perspectives on the inclusion of work-related learning in engineering curricula.** / Magnell, Marie; Geschwind, Lars Allan; Kolmos, Anette.
I: European Journal of Engineering Education, 27.10.2016.
Publikation: Forskning - peer review» Tidsskriftartikel
3. **Ingeniørstuderendes forventning og parathed til det kommende arbejdsliv : Arbejdsrapport no. 1.** / Kolmos, Kolmos, Anette; Bylov, Stine Møller.
Aalborg Universitet, 2016. 56 s.
Publikation: Forskning - peer review» Rapport
4. **Learning through design-implement experiences : A literature review.** / Bernhard, Jonte; Edström, Kristina; Kolmos, Anette.
2016. Paper presented at The 12th International CDIO Conference, Turku, Finland.
Publikation: Forskning - peer review» Paper uden forlag/ tidsskrift
5. **Outreach and attractiveness : a never ending story or a new approach?** / Gumaelius, Lena B.; Kolmos, Anette.
I: European Journal of Engineering Education, Vol. 41, Nr. 6, 27.09.2016, s. 585-588.
Publikation: Forskning - peer review» Tidsskriftartikel
6. **PBL in the School System.** / Kolmos, Anette.
Pre-university Engineering Education. Sense Publishers, 2016. s. 141-153.
7. **Response strategies for curriculum change in engineering.** / Kolmos, Anette; Hadgraft, Roger Georg; Holgaard, Jette Egelund.
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This annual report will only report on selected activities.

At our homepage www.ucpbl.net you will find a pdf version of the annual report which contain a more comprehensive portfolio of activities, and appendixes including:

- Appendix A List of staff and board members
- Appendix B List of research projects
- Appendix C Participation in Conferences
- Appendix D Participation in International Workshops, Seminars and Research Meetings
- Appendix E Invited Keynotes, Lectures and Round Tables
- Appendix F Workshops and visits arranged by the Aalborg Centre
- Appendix G Publications

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Aalborg Centre for Problem Based Learning
in Engineering Science and Sustainability
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