

The background of the slide features a photograph of a modern building with a prominent glass roof structure, situated behind a body of water. A paved walkway with a metal railing is visible in the foreground on the right. The image is partially obscured by a dark blue semi-transparent overlay where the text is placed.

PBL - Future project

**PBL competences
moving into a digital age
- challenges and possibilities**

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21st century skills (<http://www.p21.org/our-work/p21-framework>)

1. Content Knowledge and 21st Century Themes

Disciplines + ***Global awareness***

2. Learning and Innovation Skills

Creativity and Innovation

Critical Thinking and Problem Solving

Communication and Collaboration

3. Information, Media and Technology Skills

Information Literacy, Media Literacy

ICT Literacy, Computerization

4. Life and Career Skills

Flexibility & Adaptability, Initiative & Self Direction

Social & Cross-Cultural Skills,

Productivity & Accountability

Leadership & Responsibility



Engineering at CSU

Charles Sturt University

CSU Engineering - Hallmarks of Distinction

- Entrepreneurial graduates: This will be the only Australian Engineering School hosted in a Business faculty, providing technical excellence as well as communication, financial and management skills
- Embedded work experiences: Student Engineers will complete the first 18 months of their study on campus, before being embedded in industry for the remainder of the course. Our Student Engineers won't just learn engineering as they study; they will live it
- An innovative curriculum: CSU will be at the leading edge of educational technology and pedagogy, meeting Student Engineers' current and future learning needs

1. 18 month at university – doing projects and online courses
2. four year-long placements in industry + studying theory online

Emerging leaders/ MIT benchmarking New Boston university

CHRISTINE ORTIZ, MIT – building up new engineering institution

Online courses



Projects

Both individual and
team based

Connected to
research lab and
companies

Strength and challenges

PBL skills

Problems as drivers for the learning

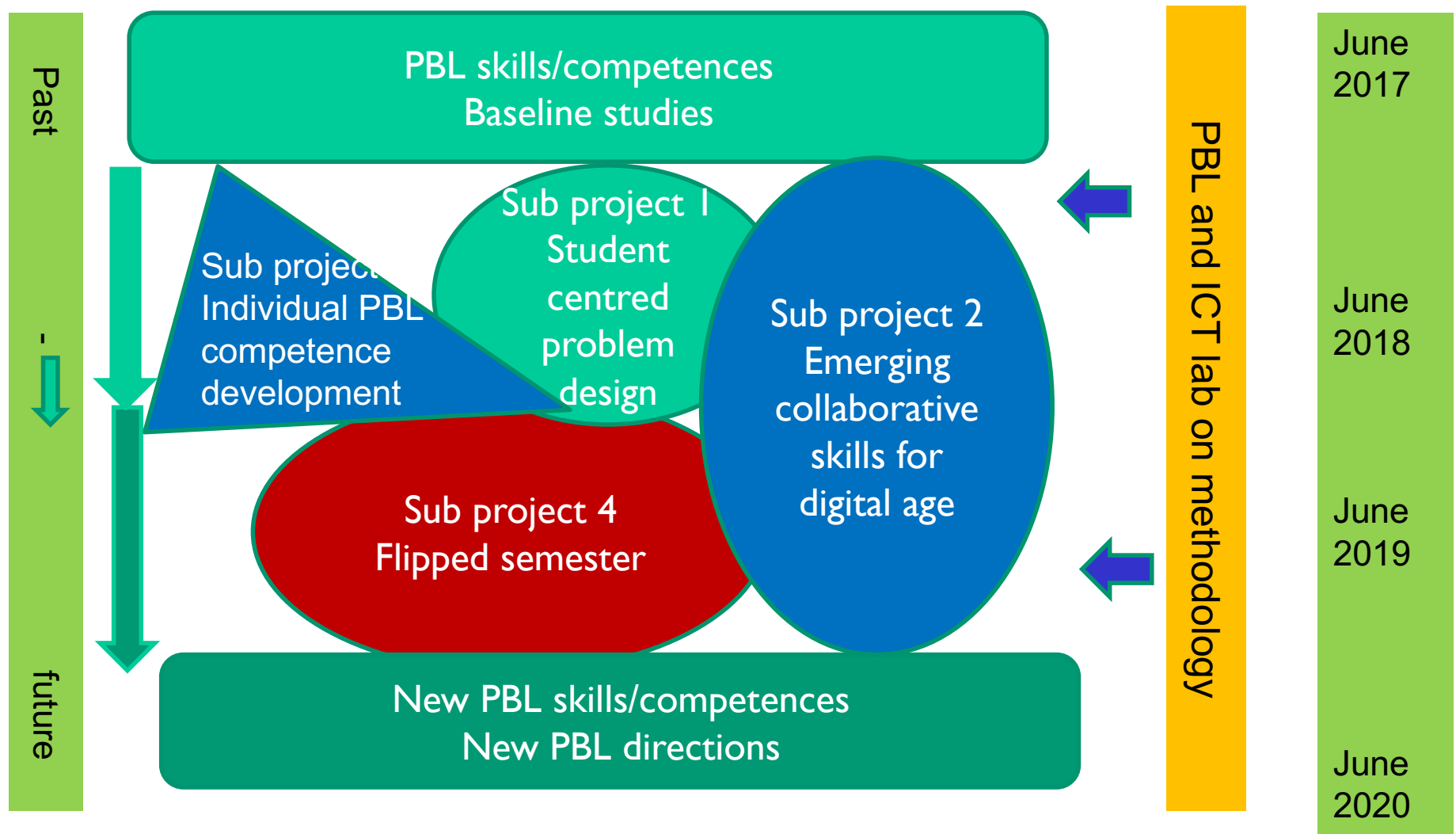
Collaborative and communicative skills

The individual reflection might be missing....

System approach – with coordination of courses
and projects

PBL future 2017-2020

A PBL response to the digital age

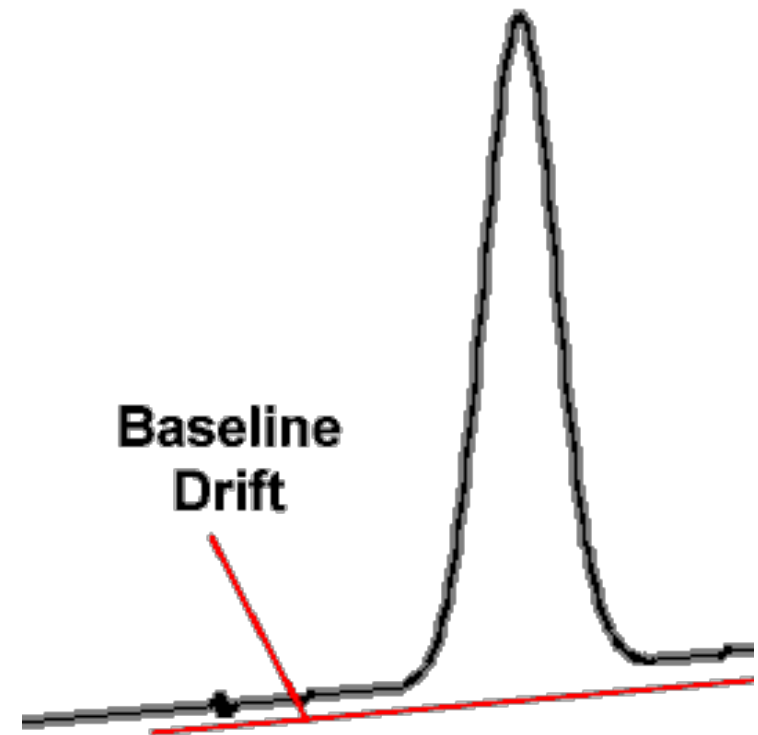


The baseline study: PBL skills and competences

Hmelo-Silver, 2004	Aalborg University	PBL skills and competences
Acquisition of flexible knowledge, Effective problem-solving skills, Self-directed learning skills, Effective collaboration skills, and Intrinsic motivation	Problem analysis Problem solving Interdisciplinary collaboration Creativity and innovative thinking Critical thinking Team work Project management Entrepreneurship Employability But but	No real definition... just lists of skills... The competences that comes out of a PBL curriculum

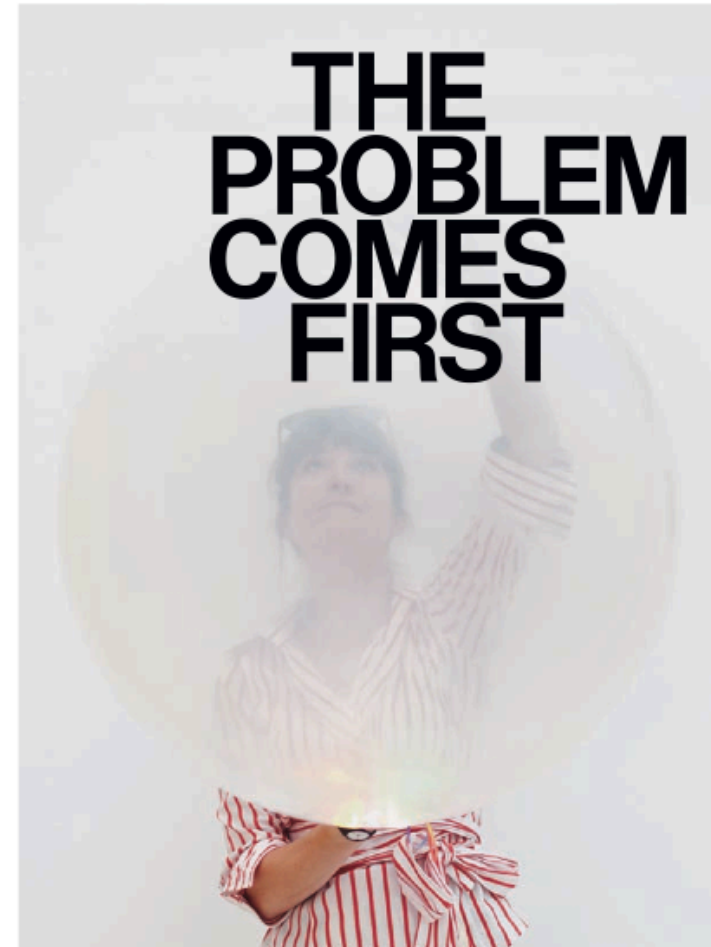
The baseline study

- 1) how the various educational programs organise and frame the PBL competences?
- 2) how the students' projects interact with the courses?
- 3) how the students and facilitators understand the learning and progression in the development of PBL competences?
- 4) what kind of digital technologies are students currently using to support their studies at AAU?

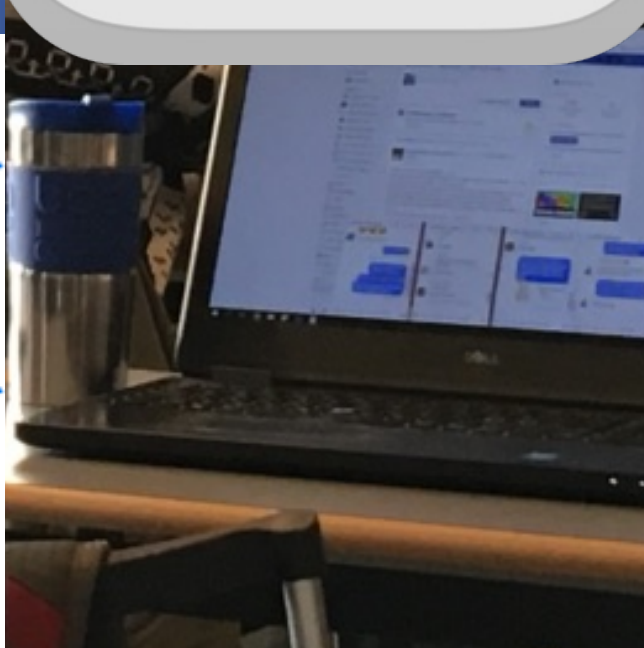
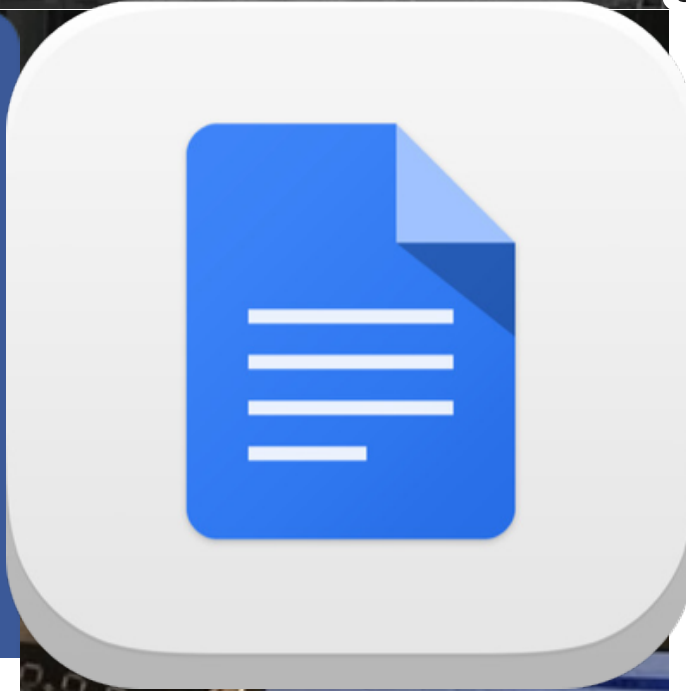


Subproject 1: Student centered problem design

- 1) What role does the process of student-led problem identification and analyses play in students' learning in projects?
- 2) How do students and supervisors experience the self-directed process of identifying, formulating and modifying problems?

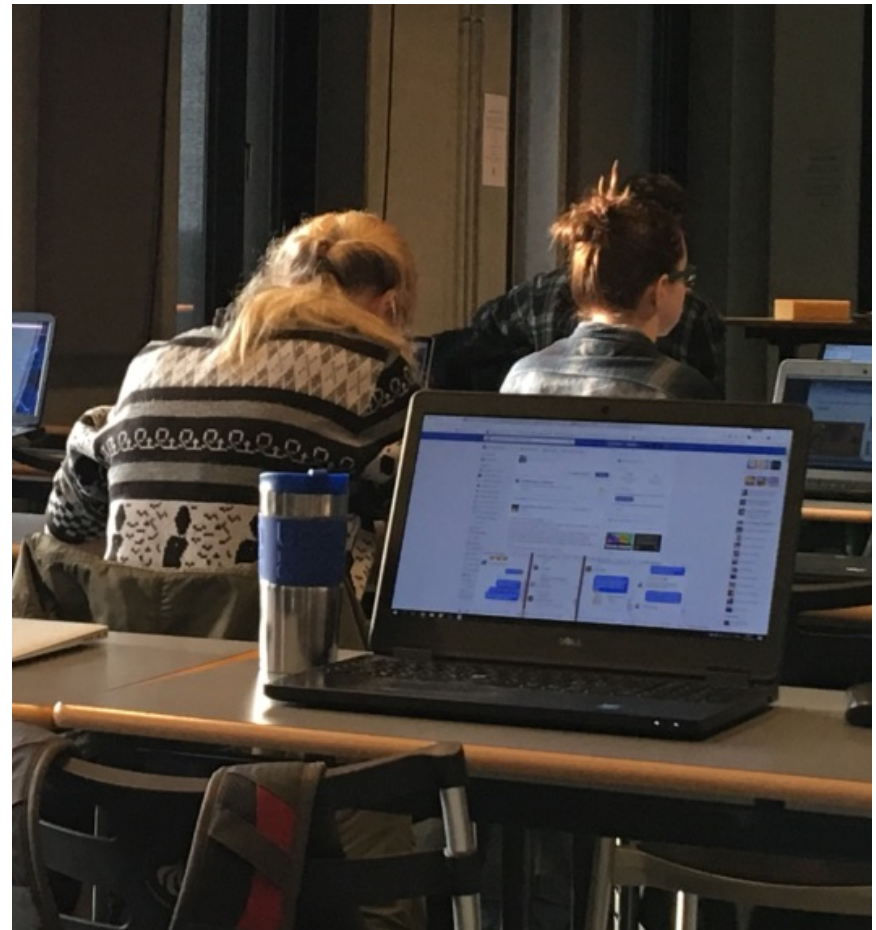


Subproject 2: Emerging PBL Collaboration Skills for a Digital Age



Subproject 2: Emerging PBL Collaboration Skills for a Digital Age

- 1) What is the impact of new technologies and hybrid spaces on students' collaboration in a PBL environment?
- 2) What are the PBL practices and collaboration skills that emerge out of this meeting and
- 3) How do these translate into wider PBL competences, that students develop or need to develop throughout their study?



Learning analytics - ethical considerations.. Students or staff?

<http://www.active-studio.com/2016/06/notes-from-the-learning-analytics-and-knowledge-lak16-conference/>

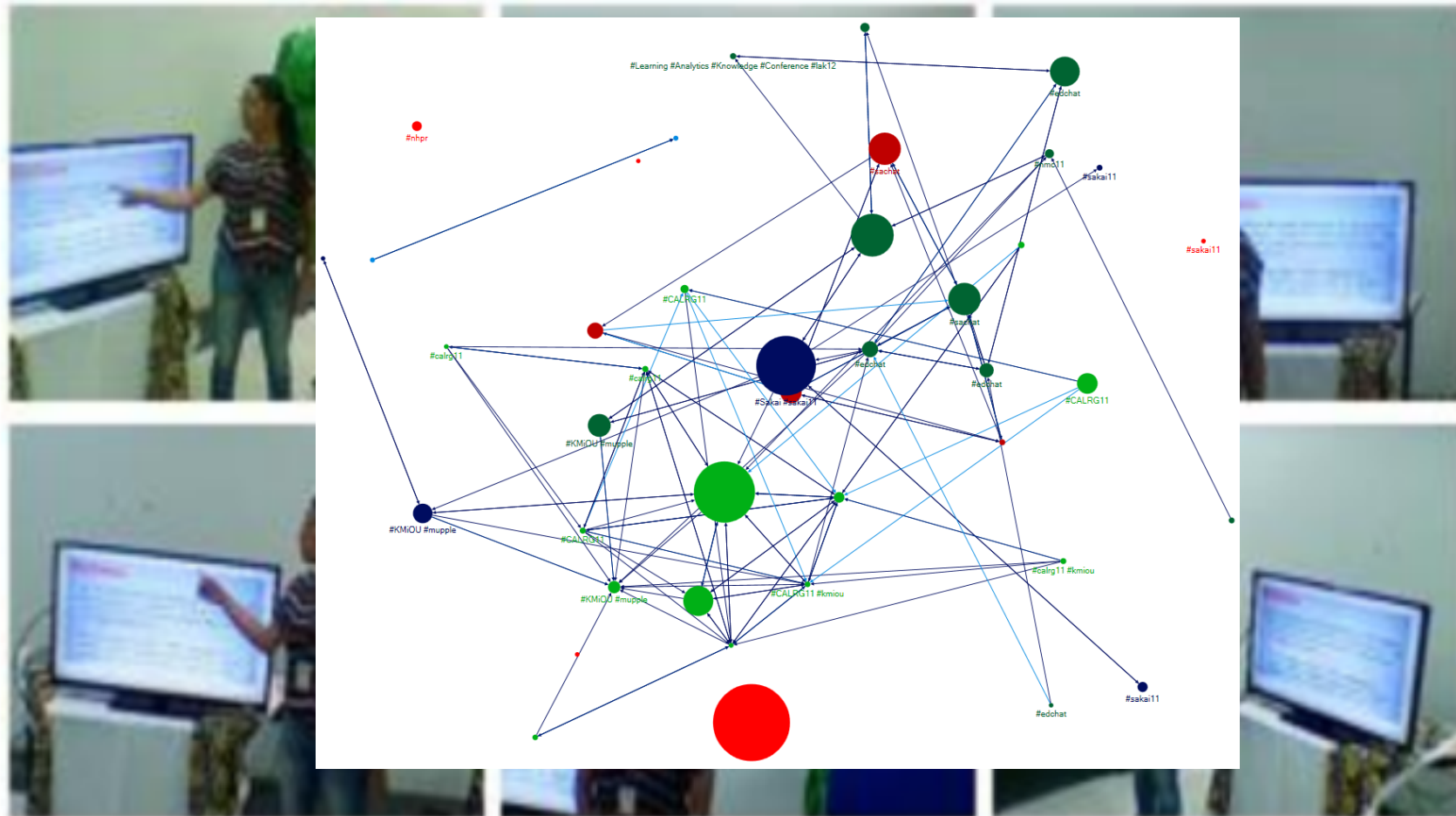
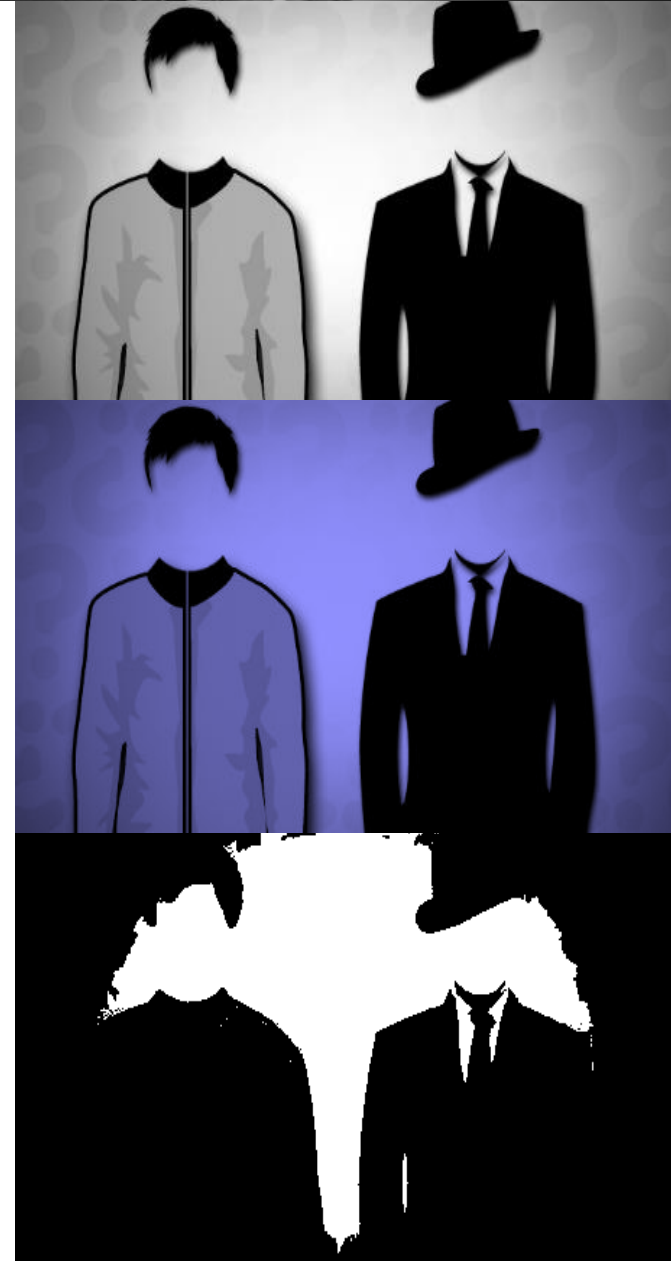


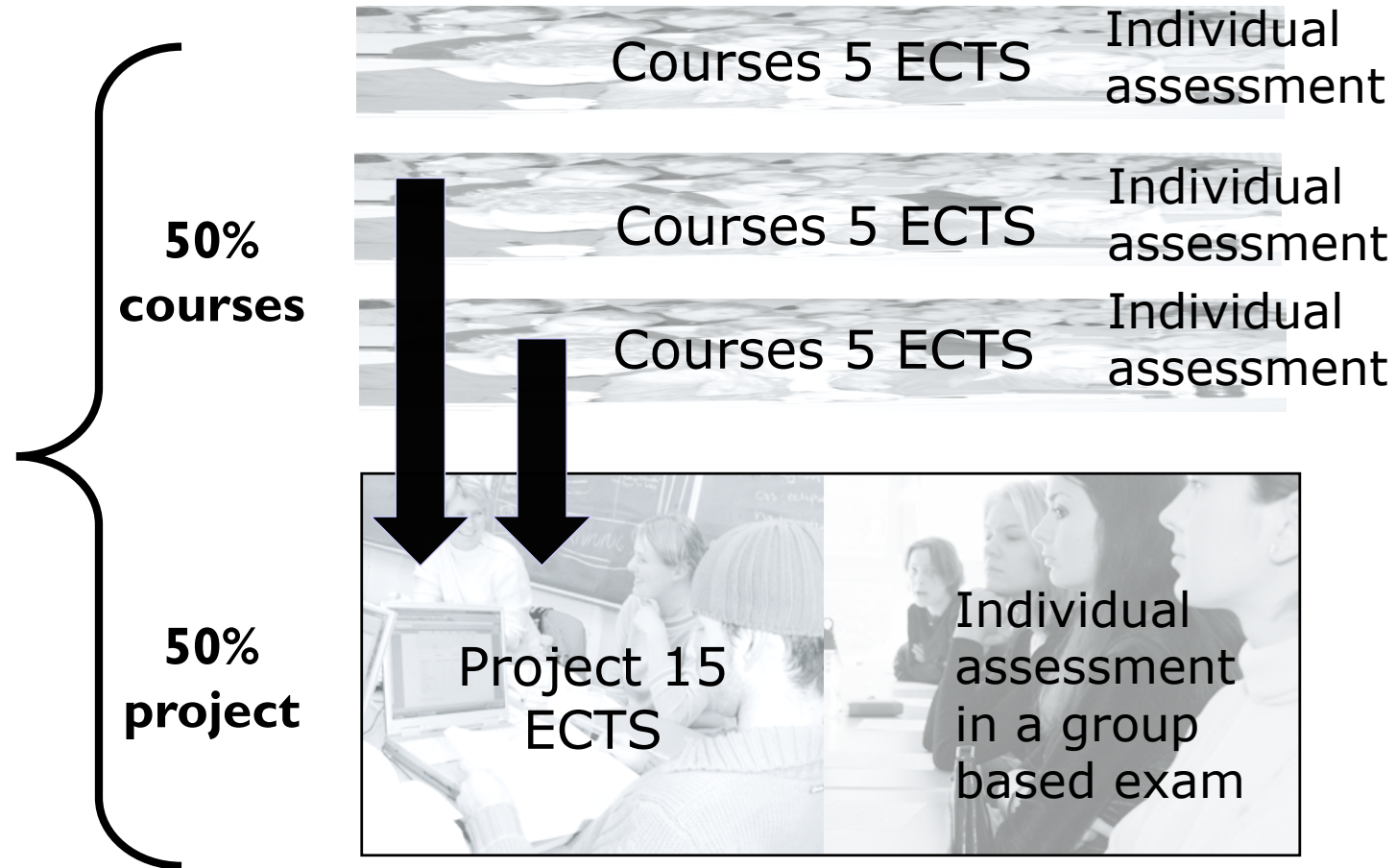
Figure 4. Captured frame from all six cameras.

Subproject 3: PBL competence development by individual students

- 1) how individual students can identify the emergence of their specific PBL competences?
- 2) how this may benefit students' development of professional identity?
- 3) how reflective tools can trace the progression of such individual competencies and
- 4) how individual students can communicate these insights to different audiences, including other group members, supervisors, external (national and international) stakeholders and future employers



Subproject 4: PBL in flipped semesters

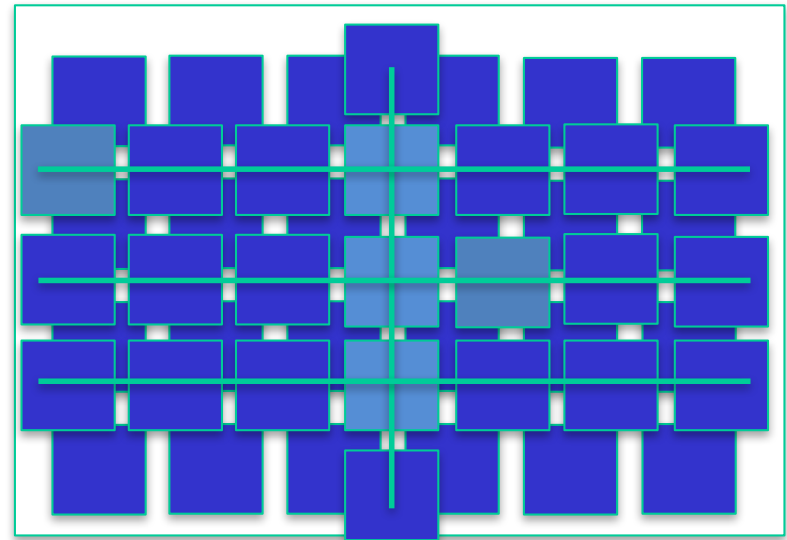


← One semester – half year →

1 ECTS (European Credit Transfer System)
= 30 working hours

Subproject 4: PBL in flipped semesters

- 1) What is the impact of a flipped classroom/semester strategy on the semester structure, for the students' learning outcome and for the students' projects?
- 2) How will the use of digital tools and a new structure of the learning environment influence the integration of courses and project work to support the PBL competences that students develop or need to develop?

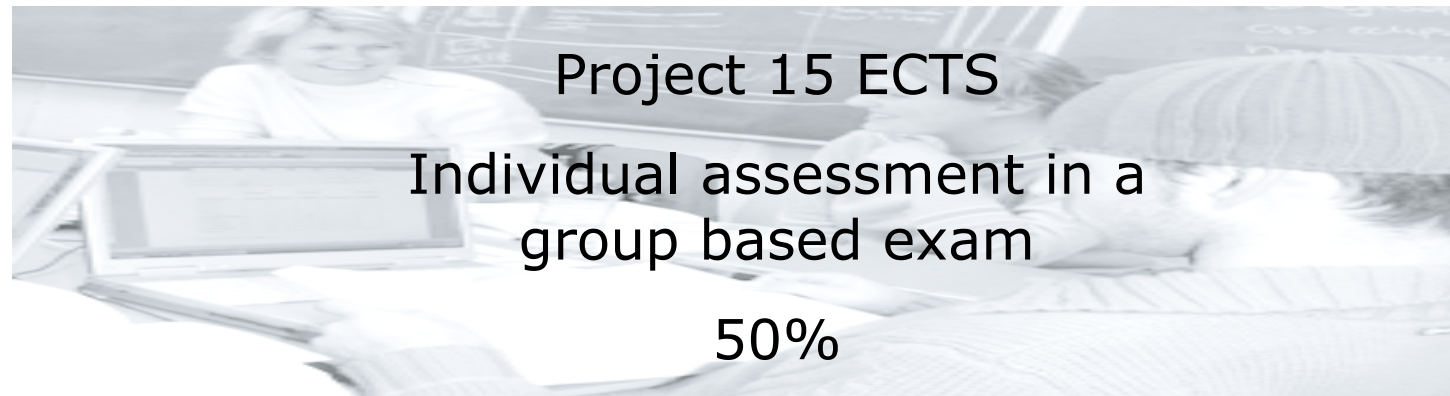


Ruth Graham, 2017

The 21st century Aalborg PBL Model



Can be
online
environment



New role for
the facilitator



Online
environment

One semester – half year