

6TH

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**Bachelor
Civil Engineering Program**

Awareness
of social interaction
as part of the

Bildung

developmental process



Norwegian University of
Science and Technology



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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Assistant Professor Jomar Tørset

- Responsible for development of the **closing** subject at Bachelor Civil Engineering Program at Norwegian Institute of Technology in 2016 and 2017. The subject goes partly in parallel with the final theses.
- The subject is **Problem Based** and has about 100 students annually. The paper «Awareness of social interaction as part of the Bildung developmental process” is a **summary of philosophy and experiences done.**

“Society is changing”

- The way we do things now is probably not the same tomorrow.
- The importance to be more adaptable and flexible has increased.
- Accordingly, we must focus on **Bildung** as part of the education.

Norwegian Bildung Comitee

Established in 2007

On this basis, the Norwegian Agency for Quality Assurance in Education (NOKUT) in 2010 established a vision for engineering studies: *As an engineer, you use both your analytical and creative skills to solve socially useful technological challenges. You must work in an innovative, structured and targeted manner. You must have excellent skills both for innovation, and for analyses, for generating solutions, for assessing, deciding, implementing and reporting, and hence you must be a good entrepreneur. Alongside Science and Technology, your linguistic skills are important, both written and orally, Norwegian as well as foreign languages. Systems that interact are an important feature of a modern society. You must be able to work independently and to work in interdisciplinary teams. As an engineer, you work with people, you are ethically responsible and environmentally conscious, and you have a major influence on society!* (Norway's Bildung committee, 2010).

www.visitnorway.no

“Project scope
– the way we do it”

- The project problems are specific but on an early stage
- The students have to act on the base they have.
- There are weekly milestones with guidance.
- 3 – 5 students within the team. May be increased to 4-6 students next year based on experiences.

How have we defined Bildung?

- Bildung is the base we act out of.
- It is something between **knowledge, skills, organisation, competence** and what you **believe/values/norms** in on one side and **instinct** and **feelings, moment of time** on the other.
- Bildung is a **sum of experience in life.**

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Use of SPGR

- SPGR helps the students to rate their own and the others' behaviour in the group.
- The Spin model states that the more all team members are capable of flexibly varying their behaviour range, the more mature the team will become.
- PBL and SPGR can be used for research on small teams

Systematizing the Person-Group Relation

- Basis for Projects can be divided into «Level of Purpose» based the projects Clarity, Difficulty, Complexity and Predictability.
- Measurement by use of SPGR gives ideas of why the project performance is the way it is. Is it according to your expectations?
- **Measurement 1 in week 3 gives ideas of how the individual cooperate and are related to each other.**
- **Measurement 6 in week 6 and the process report is interesting with respect of my role as a teacher, in addition to individual and team development.**
- The SPGR measurement for the projects has been done by the start week 3 and end of week 6. The project period is 8 weeks.

“Lessons learned”

- Such PBL subject is new for the students and they are not prepared for it. The evaluation from the students **are below average**.
- The SPGR project measurements is an important tool both for development of SPGR itself and to give a basis for what, when and how to say it.
- The distinction between absolutly and directional information is important. The students search for absolute Information.
- The students got more directional information this year than last year and will get more next year. Is it sure that more information is the best for the Bildung development process? What, when and how to say it is difficult.
- The results of the Bildung development process has to be seen in a longer perspective. Word like, **adult**, responsible, se try to see things from a higher perspective and try forsee what happens before it really happens means something to me in what I am looking for.
- It is hope that the base given will have more positive flashbacks later in life. **Not** all experiences may be such that it is **understood immediatately**.

“Summary”

- My contribution for the students is challenge the students to use 250 hours within 8 weeks to solve a important problem in a community oriented way. Half of the delivery is technical, the other half is description and reflection of the process they have been through.
- The problems are related to the Civil Engineering study and I expect that students do the best they can. Destructive elements should be avoided.
- This is ment to be start in order to prepare the students to take their role in the society – and I say good look!
- **This is a new subject and I look forward to get feedback and to hear and see how others think and have done it.**