



«Sustainable assessment and active learning»

Keynote at Inspiration Day on Exam Forms

Centre for Teaching and Learning
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UNIVERSITETET I BERGEN



Current debate



Active students



Communities of learning



Reflection and critical thinking

Quality culture



Concerns from colleagues at the Univ of Bergen:

«Arild, our students only regurgitate parts of the curriculum on the exam, and do not seem to be able to analyse and discuss. What can we do?»

Professor of philosophy

«Arild, our students tell us back facts and details from lectures and do not reply to our request to lead a critical discussion. We use 4-hour written exams. Perhaps we should give them an additional two hours, and instruct them that the last two hours they have to analyse and discuss?»

Vice-dean for education, Law.

Learning outcome....



Education “in” and “out”



Active students – some questions:

1. Why should we activate students?
2. How should we activate students?
3. Are all forms of activity positive?
4. What is it that we activate when we activate students?
5. When students become (more) active, one would expect the teacher to be less active?
6. Where should students be (more) active?
7. If we want students to take a more active part in their learning, why do we stick to the traditional exam?
8. How can students play an active role in assessment (other than being assessed!)?



Learning and teaching

All planning of teaching must be based on the following principle:

Learing takes place in students' time, through the kind of activities they engage in either on their own or together with others/peers.

Raaheim, A. (2011). Læring og undervisning. Bergen: Fagbokforlaget

Raaheim, A. (2013). Råd og tips til deg som underviser. Oslo: Gyldendal Akademisk.



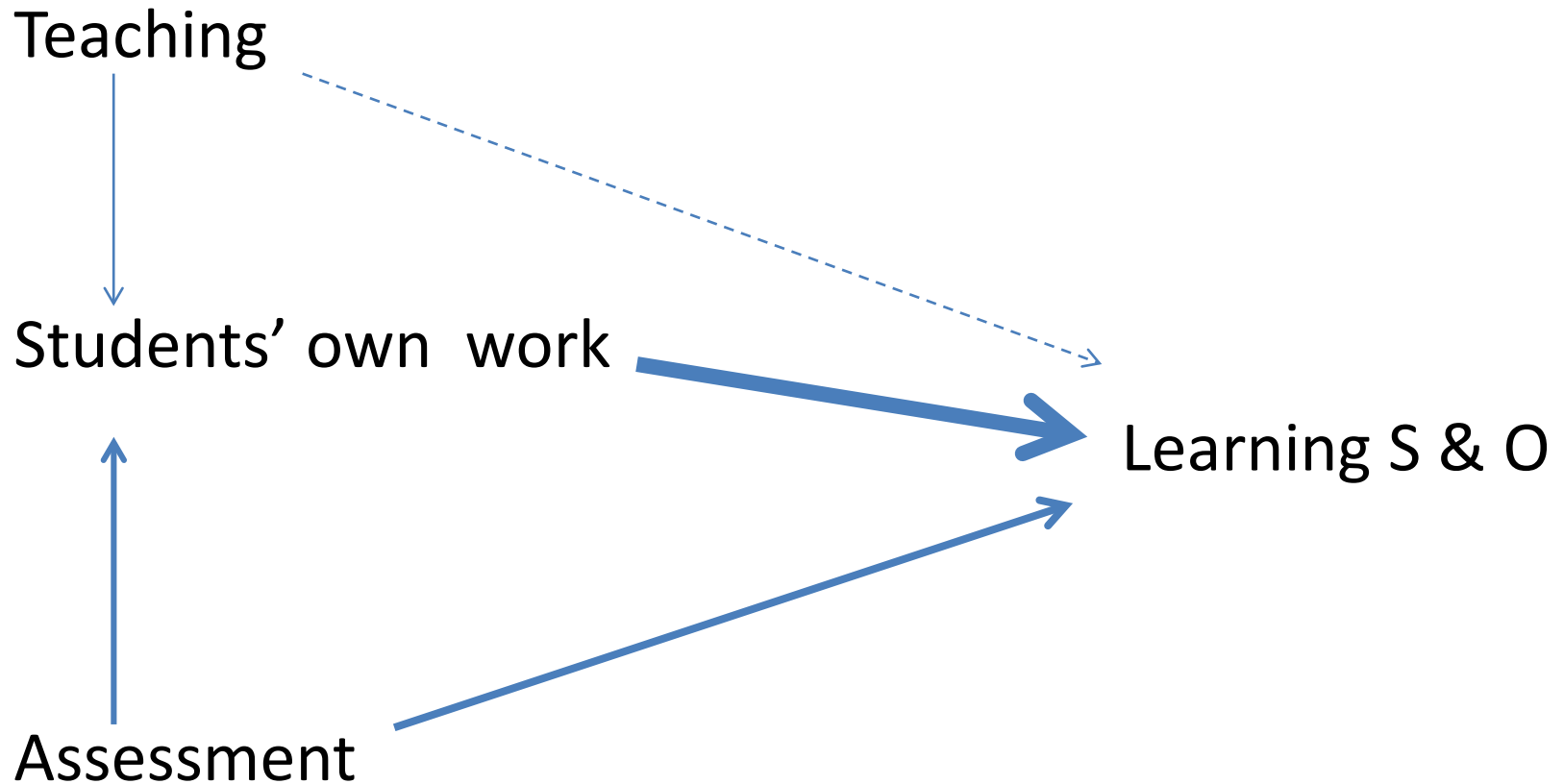


Culture for learning

Presupposes that:

- Focus is on students (what students do)
- We are familiar with some of the research on students' learning and assessment (research based teaching: teaching that is planned and conducted on the basis of what research has shown promote good learning)
- Our institutions assign more status to teaching
- We think holistically when planning our teaching and assessment practices («constructive alignment»)
- We discuss with colleagues (co-ordination)

Learning is a result of:



Curriculum design – how and when do we lecture

14000 medical students (1989-1998) in 8 Dutch medical schools.

- time available for self-study was the only determinant of graduation and study duration
- lectures were negatively related to study duration
- extensive lecturing may be detrimental in higher education

«Generally, students who were part of a program that allowed for more time for self-study completed their training faster and in larger numbers..... The more lecturing, the less time for self-study, the fewer students completing their studies» (Schmidt et al., 2010,p 297).

Schmidt, H.G., Cohen-Schotanus, J., van der Molen, H., Splinter, T.A.W., Bulte, J., Holdrinet, R. & van Rossum, H.J.M. (2010). Learning more by being taught less: a «time-for-self-study» theory explaining curricular effects on graduation rate and study duration. *Higher Education*, 60, 287-300.

Self-determination and learning

Ryan & Deci – self determination theory

- Autonomy
- Competence
- Relatedness

Jeno, L.M., Raaheim, A., Kristensen, S.M., Kristensen, K.D., Hole, T.N., Haugland, M.J. & Mæland, S. (2017). The Relative Effect of Team-Based Learning on Motivation and Learning: A Self-Determination Theory Perspective. *CBE—Life Sciences Education*, 16:ar59, 10.1187/cbe.17-03-0055

Jeno, L.M., Danielsen, A.G. & Raaheim, A. (2018): A prospective investigation of students' academic achievement and dropout in higher education: a Self-Determination Theory approach. *Educational Psychology*. <https://doi.org/10.1080/01443410.2018.1502412>.

Relatedness among students at the University of Bergen



- One third answer that feel low/very low social belonging/relatedness to the study program
- Close to 25% of the students answer that they feel low/very low academic belonging/relatedness to the study program

...and the students are generally quite dissatisfied with the pedagogical qualities of the teachers.

Bøyum, B. (2014). **UiB-student 2013**

Samlerapport fra studentundersøkelsen 2013 til Universitetets utdanningsutvalg og Læringsmiljøutvalget ved Universitetet i Bergen

National survey among students (Nokut)

<http://www.studiebarometeret.no/no/>



- 2016: 97% answer that traditional lectures is (often/very often) the preferred teaching method.
- 2017: Students most dissatisfied with:
 - Feedback and supervision
 - Their opportunity to influence content and teaching and assessment activities
 - The way criticism is being dealt with
- Assessment criteria are lacking/unclear



National survey among academic staff 2017

- Teachers are satisfied with their own competence – only 12% answer that they need to improve their pedagogical competence
- A very small minority engage in research and analyses on and of their own teaching and assessment practices

Underviserundersøkelsen 2017 – Hovedtendenser

<https://www.nokut.no/studiebarometeret/underviserundersokelsen/>



Teaching is...?

Virtanen & Lindblom-Ylänne: 73 students and 47 teachers were asked what they understood by «teaching» and «learning».

Students: nearly all answered that teaching is about *transfer of knowledge and facts, and transfer of facts about practical use of knowledge*.

Virtanen and Linblom-Ylänne describe this as a knowledge-centered understanding of teaching; teaching as the transfer of knowledge.

Much greater variation among *teachers*, but there was a common core which Virtanen and Lindblom-Ylänne describe as teaching for understanding and academic growth.

Paradoxical situation: Students come to classes to absorb as much knowledge as possible (assimilation), while teachers see themselves as contributing towards critical thinking (accomodation).

Virtanene, V. & Lindblom-Ylänne, S. (2010). University students' and teachers' conceptions of teaching and learning in the biosciences. *Instructional Science*, 38, 355-370.

Teaching and assessment in the digital age 💧❤️🟢

– two routes

Low-threshold route

Technology incorporated into existing practice/thinking

- More advanced PP-lectures
- MOOC's
- Use of clickers/Kahoot
- Smartboards
- LMS: in/out
- Exam via PC
- Summative and formative assessment

High-threshold route

Technology used to change traditional thinking and practice

- Reduce number/length of lectures
- Introduce SMOOC's
- Open source exam
- Online-conferencing
- Local-interactive «distance» teaching
- Learning labs for students' (video) productions
- New architecture
- Sustainable assessment
- World Wide Assessment (WWA)



The paradox of learning

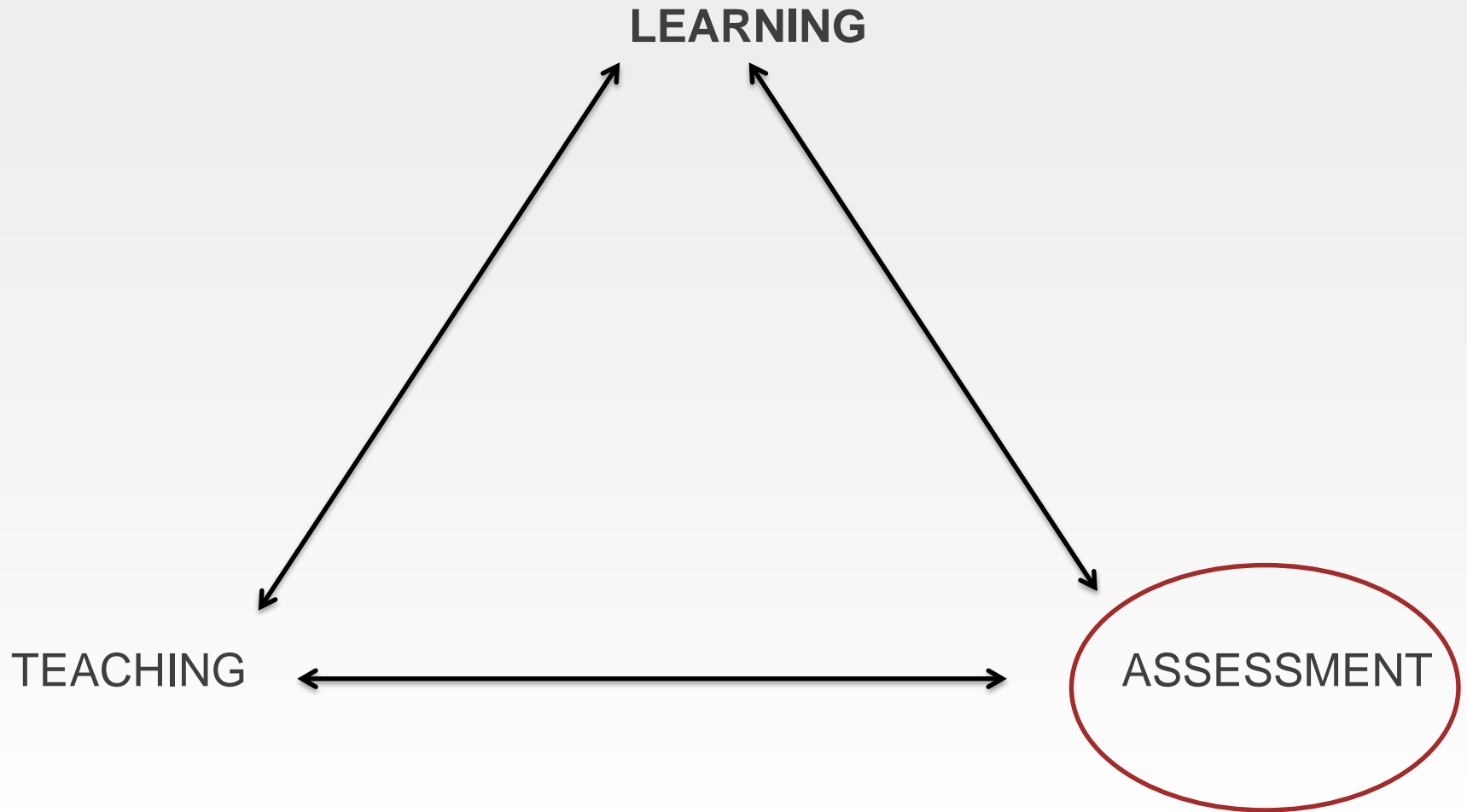
University science professors preach a gospel of seeking truth through data and careful experimentation, yet when they walk into a classroom, they use methods that are outmoded and ineffective. The overwhelming fraction of undergraduate science courses are taught by a professor lecturing to students, even in the face of many hundreds of studies showing that alternative teaching methods demonstrate much greater student learning and lower failure rates.

Carl Wieman

'Stop lecturing me', Scientific American, August 2014



An academic trinity – constructive alignment





Assessment

Is the most powerful tool we control that influences and shapes learning.

Let us take this «hidden curriculum» into the open and actively use it!

What is more important – learning or testing?



Assessment more than exams

Assessment of learning (summative assessment)

Assessment for learning (formative assessment)

Assessment as learning (sustainable assessment)



Exams – historical background

- The examination system was systematized in the Sui Dynasty (581–618) as an official method for recruiting bureaucrats. It was intended to ensure that **appointment as a government official was based on merit and not on favoritism or heredity.**
- Theoretically, any male adult in China, regardless of his wealth or social status, could become a high-ranking government official by passing the imperial examination.
- Candidates were tested on their knowledge of the Confucian classics, their ability to write, and the "Five Studies:" military strategy, civil law, revenue and taxation, agriculture, and geography. Though only about 5 percent of those who took them passed, the examinations served to maintain **cultural unity and consensus on basic values** and ensured the identification of the educated elite with national, rather than regional, goals and values.

[http://www.newworldencyclopedia.org/entry/Imperial_Examinations_\(Keju\)](http://www.newworldencyclopedia.org/entry/Imperial_Examinations_(Keju))

Eric Mazur on high stake assessment:

- Assessment: the silent killer of learning
<http://ericmazur.com/resources.php>
- Learning is, or should be, a process whereby you solve problems. Problem solving involves making mistakes. It is all about making mistakes. But what is assessment all about? What are exams? **Our assessment practice is about penalizing mistakes.** It makes students afraid of making mistakes, thereby killing all forms of creativity. **Assessment, especially in the form of exams, kill curiosity.** Exams test memorization, not problem solving abilities.
- Thomas Edison: «I have not failed. I've just found 10,000 ways that won't work»
 - As quoted in: [J. L.] Elkhorne. Edison — The Fabulous Drone, in [73 Vol. XLVI, No. 3 \(March 1967\)](#), p. 52

Digital exams - Old wine in a new bottle?





Summative and formative assessment

Whereas **summative assessment** takes place at the end of, and separate from, learning activities with the aim of **controlling** what/how much students have learned, **formative assessment** takes place during, and as part of, learning with the aim of assisting students in **monitoring** their own learning (feedback as a means to achieve self-monitoring).

Formative assessment is often done in combination with, or as part of summative assessment.



Sustainable assessment

“The notion of sustainable assessment, ... is to focus on the need for all assessment practices to equip learners for the challenges of learning and practice they will face once their current episode of learning is complete” (Adesemowoa, K., Oyedelea, Y. & Oyedeleb, O. 2017, s. 2).

“...sustainable assessment theory proposes to move beyond summative and formative assessment by positing that students should be more actively involved in their own assessment by increasing their participation both in the process of identifying assessment criteria and in making judgements themselves”(Beck, Skinner & Schwabrow, 2013, s. 327-328).

Adesemowoa, K., Oyedelea, Y. & Oyedeleb, O. (2017). Text-based sustainable assessment: A case of first-year information and communication technology networking students. *Studies in Educational Evaluation*, 55, s. 1-8.

Beck, R.J., Skinner, W.F. & Schwabrow, L.A. (2013) A study of sustainable assessment theory in higher education tutorials, *Assessment & Evaluation in Higher Education*, 38:3, 326-348, DOI: 10.1080/02602938.2011.630978

Learning for an unknown future.

Content-focused vs capability-focused curriculum.



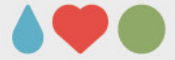
Knowledge capability:

- work out the key aspects to be dealt with in each new situation
- relate these aspects to knowledge already acquired and/or to other knowledge the person knows how to access
- determine what the task or problem in the new situation might be
- design a process or solution to deal with the situation, and then
- have the ability to follow through and complete the task or solve the problem, either alone or with others.

«...knowledge capability ... is achieved through experience of variation, rather than merely having varied experiences» (s. 233).

Baillie, C., Bowden, J.A. & Meyer, J.H.F. (2013). Threshold capabilities: threshold concepts and knowledge capability linked through variation theory. *Higher Education*, 63, 227-246.

Assessment needs to be guided by an assessment policy



An assessment policy is:

a set of guidelines applicable to assessment within a particular institution. This set of guidelines points to and explains the underlying principles in assessment, and may be followed by an assessment guide which describes different assessment methods.

Within the Norwegian context, assessment strategies are more or less non-existent.

At present our institutions have examination regulations which in many cases put restraints on alternatives that national laws and regulations do not

Arild Raaheim, Ketil Mathiassen, Vegard Moen, Irene Lona, Vidar Gynnild, Bente Ringlund Bunæs & Emil Trygve Hasle (2018): Digital assessment – how does it challenge local practices and national law? A Norwegian case study, European Journal of Higher Education, DOI: 10.1080/21568235.2018.1541420



Alternative vurderingsformer

Muligheter og begrensninger

UiB:

§ 1.2 Avvik fra deler av forskriften ved utprøving av nye eller alternative lærings-, undervisnings- og vurderingsformer

I forbindelse med utprøving av nye eller alternative lærings-, undervisnings- og vurderingsformer kan fakultetene etter søknad gis anledning til å fravike bestemmelsene i kapittel 5-7 i forskriften her i en nærmere angitt prøveperiode. Det forutsettes at ethvert tiltak som nevnt blir evaluert. Regelen her gjelder fram til avslutningen av studieåret 2019/2020.

Men krever også en vurderingsstrategi (assessment policy)

Assessment alternatives - an ocean of possibilities. 💧❤️🟢

Variation along the following dimensions:

- **Level**
 - Whether students are assessed alone or together with others
- **Arena**
 - Where assessment is carried out (at the institution, in natural situation outside the institution, in a virtual room)
- **Form**
 - Whether assessment is based on written material, practical (artistic) work or an oral presentation
- **Format**
 - Summative or formative assessment, or a combination of both

40 alternativer til den tradisjonelle skriftlige eksamen:

Eksamensrevolusjonen. Gyldendal Akademisk, 2016.



Skriftlig eksamen

- Alternativ 1: Med medbrakt «fuskelapp»
- Alternativ 2: Med innlagt mulighet for innhenting av informasjon/diskusjon med medstudenter
- Alternativ 3: Med åpenhet til alle typer kilder
- Alternativ 4: «Take away» eksamen
- Alternativ 5: Individualisert eksamen
- Alternativ 6: Objektiv prøve (multiple choice)
- Alternativ 7: Omvendt objektiv prøve
- Alternativ 8: Studenten som sensor
- Alternativ 9: Stasjonseksamen
- Alternativ 10: Fagartikkel

Muntlig eksamen

- Alternativ 11: Med tid til forberedelse
- Alternativ 12: Som forberedt klage/ankemulighet
- Alternativ 13: Posterpresentasjon
- Alternativ 14: Praktisk muntlig
- Alternativ 15: Disputas
- Alternativ 16: Foredrag
- Alternativ 17: Intervju

Andre vurderingsformer

- Alternativ 18: Bidrag på vitenskapelig konferanse

- Alternativ 19: Mappevurdering
- Alternativ 20: Virtuell konferanse
- Alternativ 21: Praktisk oppgave utenfor institusjonen
- Alternativ 22: Oppdragsvirksomhet
- Alternativ 23: Logg
- Alternativ 24: Intervju av fagperson
- Alternativ 25: Utplassering
- Alternativ 26: Prosjektpresentasjon
- Alternativ 27: Vurdering av medstudent
- Alternativ 28: Kronikk
- Alternativ 29: Litteraturanmeldelse
- Alternativ 30: Kursanmeldelse
- Alternativ 31: Planlegging av undervisning
- Alternativ 32: Blogginnlegg
- Alternativ 33: Facebook-gruppe
- Alternativ 34: Film
- Alternativ 35: TBL-aktivitet
- Alternativ 36: Arrangere faglig aktivitet
- Alternativ 37: Analyse av vurderingsformer
- Alternativ 38: Studenten som underviser
- Alternativ 39: Pasienten som sensor
- Alternativ 40: Ekstern sensur

