Team-basert læring
En praktisk innføring i fremtidens undervisning
DEATH OF THE LECTURE?

WHILE THE TRADITIONAL LECTURE STILL HOLDS A RESPECTED PLACE IN ACADEMIE, IT IS BEING SUPPLANTED BY THE COURSE OUTLINE.

By Patrick D. Brooks

The lecture format is not going away, but it is becoming less dominant in higher education. In recent years, there has been a shift towards more interactive and student-centered teaching methods such as problem-based learning, case studies, and collaborative learning.

THE ATLANTIC

Is the Lecture Dead?

by Edward Gardiner

Lectures are not just about conveying information as efficiently as possible. A lecturer’s role goes beyond just delivering content. They are also responsible for creating an environment that fosters student engagement, critical thinking, and problem-solving skills.

Twilight of the Lecture

The trend toward “active learning” may overthrow the traditional lecture model at some point in the future. The lecture may not disappear entirely, but it is likely to evolve into a more interactive and student-centered format.

by Craig Lambert

In many universities, lecturers are using new technologies to enhance the learning experience. They are incorporating multimedia, interactive software, and online resources to make lectures more engaging and accessible to students.

The lecture is not dead, but it is undergoing a transformation. It is becoming more interactive and student-centered, and lecturers are using innovative teaching methods to enhance student learning.
EKSAMEN-REVOLUSJONEN
Råd og tips om eksamen og alternative vurderingsformer
Arild Raaheim
Forelesning
Øvinger
Eksamen
Team-Based Learning

- prosjekter
- bøker
- video
- quiz
- foredrag*
- interaksjon
- refleksjon
1: Team-Based Learning

2: Kursutvikling

3: Refleksjon
1. Team-Based Learning
Teams

Team T 4

Awesome Team Name: FOURIKAL
Forberedelse

1 eller 2 kapittel, videoer, ++

Preparation

Readiness Assurance

iRAT  tRAT  Mini-lecture

Team Application Activities
Readiness Assurance: Individual

multiple-choice, 10 spørsmål, 20 minutter
Readiness Assurance: Team

samme test, 20 minutter, en løsning per team
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Readiness Assurance: Appeal

skriftlig, leveres inn
blir vurdert etter timen
Mini-Lectures

forklar bedre det som ikke ble løst riktig
kort... 20 minutter
(må ikke erstatte forberedelse)
Team Application Activities

Preparation

Readiness Assurance
- iRAT
- tRAT
- Mini-lecture

Team Application Activities
Significant Problem  Same Problem  Specific Choice  Simultaneous Report
## Peer Evaluation

<table>
<thead>
<tr>
<th></th>
<th>Student 1</th>
<th>Student 2</th>
<th>Student 3</th>
<th>Student 4</th>
<th>Student 5</th>
<th>Student 6</th>
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</thead>
<tbody>
<tr>
<td>Student 1</td>
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<td>Student 2</td>
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<td>Student 3</td>
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<td>Student 4</td>
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<tr>
<td>Student 6</td>
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<td>20</td>
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</tr>
</tbody>
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Total: 100 100 100 96 102 102
2. Kursutvikling
Design av reaktive systemer 1

75.. 120 studenter

system- og programvareutvikling

språk og modeller

arkitektur

prosess og metode
RAT 1: Deployment
RAT 2: Requirements
RAT 3: Use Cases
RAT 4: Interactions
RAT 5: State Machines
RAT 6: Communication
RAT 7: Activities
RAT 8: Agile Dev.

D1: Requirements
D2: Interactions
E1: Requirements
E2: Interactions
D3: Launch Day

Eksamen
Timeplan

8:00
- i-RAT
- t-RAT

9:00
- Results
- Lecture
- Exercise

10:00
- Lecture

11:00
- Team Application Activities

12:00
Info til studenter

Instructions
1. Find a good team name.
2. Visit the Google spreadsheet and add your names and emails. (Use the NTNU mail if possible.)
3. Take a picture of your team. (Show the team sign, make your name tags visible.)
4. Upload the team picture to http://padist.com/trm115/teams_2017
Teams
Teams
To:

Cc:

Subject: TTM4115 - Unit 2 Preparation

Hi Teams,

for the next unit we are going to...

--
Frank Alexander Kraemer, Ph.D.
Associate Professor
Department of Information Security and Communication Technology
Norwegian University of Science and Technology, NTNU

Email: kraemer@ntnu.no
Mobile: +47 959 28 555
Office: B223
Skype: kraemer.frank
## About Team-Based Learning

<table>
<thead>
<tr>
<th>Question 1: The sequence of how a unit works is the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ a) reading, t-RAT, i-RAT, mini-lectures, team activities</td>
</tr>
<tr>
<td>☐ b) t-RAT, i-RAT, mini-lectures, reading, team activities</td>
</tr>
<tr>
<td>☐ c) i-RAT, t-RAT, mini-lectures, reading, team activities</td>
</tr>
<tr>
<td>☐ d) reading, i-RAT, t-RAT, mini-lectures, team activities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question 2: The readiness assurance test is done with the following helping material:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ a) It doesn’t really matter.</td>
</tr>
<tr>
<td>☐ b) Open books.</td>
</tr>
<tr>
<td>☐ c) Only the reading guide is allowed.</td>
</tr>
<tr>
<td>☐ d) Closed books.</td>
</tr>
</tbody>
</table>

### Instructions:
- Fill in your name above.
- Select exactly one answer alternative.
- Select the one that matches best.
- The test is closed book. No helping material is allowed.

### Answer to questions (A, B, C, or D)

<table>
<thead>
<tr>
<th>Full name</th>
<th>Answer to questions (A, B, C, or D)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7 8 9 10</td>
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</table>

**Question 1:** The sequence of how a unit works is the following:
- ☐ a) reading, t-RAT, i-RAT, mini-lectures, team activities
- ☐ b) t-RAT, i-RAT, mini-lectures, reading, team activities
- ☐ c) i-RAT, t-RAT, mini-lectures, reading, team activities
- ☐ d) reading, i-RAT, t-RAT, mini-lectures, team activities

**Question 2:** The readiness assurance test is done with the following helping material:
- ☐ a) It doesn’t really matter.
- ☐ b) Open books.
- ☐ c) Only the reading guide is allowed.
- ☐ d) Closed books.

**Question 3:** When do students get the feedback to the RATs?
- ☐ a) Immediately within the first, individual round (i-RAT).
- ☐ b) Immediately within the second, team round (t-RAT).
- ☐ c) In class, before starting the team application activity.
- ☐ d) Offline, after the class.

**Question 4:** What about the composition of teams?
- ☐ a) Teams are formed by the instructor.
- ☐ b) Teams are formed randomly, at the start of each class.
- ☐ c) Teams are determined by a random procedure, and stay constant after that.
- ☐ d) Teams are remixed once during the semester.

**Question 5:** When do the teams meet and work together?
- ☐ a) Teams can meet at any time, but TBL only requires them to meet during class time, since it may be difficult to schedule team meetings outside class.
- ☐ b) Teams usually only meet during class time, and there they do together team activities and the t-RAT.
- ☐ c) It is important that students also meet with their teams outside of class time, to accelerate the team building process.
- ☐ d) both (a) and (b).
Instructions:

- Select exactly one answer, the one that matches best.
- No helping material is allowed.
- Copy your final answers into the scheme above.
Significant Problem

Same Problem

Specific Choice

Simultaneous Report

✔

✔

✘

✘
Team n gir tilbakemelding til Team n-1
3. Refleksjon
team
ca. 50%

individuell
ca. 50%
Peer Evaluation

Student 1
Student 2
Student 3
Student 4
Student 5
Student 6

[Diagram showing a network of students with arrows indicating evaluations]
Lecture Attendance 2017

- RAT: 96%
- RAT: 88%
- RAT: 90%
- RAT: 94%
- RAT: 94%
- RAT: 64%
- RAT: 52%
- RAT: 91%
- RAT: 77%
Average Grades

- 2012: 3.2
- 2013: 2.7
- 2014: 3.2
- 2015: 3.8
- 2016: 2.5
Student Dropout (fail or cancel)
GRUPPEPLASSERING VED TEAM-BASERT LÆRING
University of Minnesota

29 active learning classrooms

http://www.classroom.umn.edu/roomsearch
Team-Based Learning

- prosjekter
- video
- bøker
- quiz
- foredrag*
- interaksjon
- refleksjon
Og du?