

Team-basert læring

En praktisk innføring i fremtidens undervisning

DEATH OF THE LECTURE?

WHILE THE TRADITIONAL LECTURE STILL HOLDS A RESPECTED PLACE IN ACADEMIC LIFE, IT IS BEING SUPPLANTED BY THE C

By Patrick S. Brundage • Illustrations by Tim



whiteboard erases across the front of the roof of the valley, including a pair of opposite-facing ridges around the river. Three or four pairs of others sit with their backs to him or with their

Outside, it's peak image-seizing season. I tie the tips of my fingers over the valley, providing a natural barrier. No one seems to notice. There is no time for class is not over. The end of his monologue begins. He starts to circulate around the room to 11:03 a.m.

Cosman 251 more closely resembles a high-top combination chair—its seats are aligned neatly inside the front of the room. Nad Seelies and Helen, one in the class — Communicating Across Cultures professors, follow Lee discussion and jingpung when they have an experience they would like to mislate class, they linger for a few extra seconds teach their next class.

You never know where you will find college post-grads! Find them engaged in a one-way conversational flackwell and many other colleges and universities long adhered to as the standard for post-second learning methods where students are doing some learning to the instructor and taking notes.

"The 'trust me' days of higher education are over," says chemical engineering whiz who has gained international

the Atlantic

Is the Lecture Dead?

Dr. Arifumi Choudhury

Education isn't just about conveying information as efficiently as possible. A lecture, done right, gets to the heart of why a lesson is worth learning.



Berg, Borek, & Winkler

The nation's 36,000 public, suburban, and 36,000 nonpublic school districts might find that lectures are dead, to at least find. Health professions curricula increasingly feature small-group, interactive teaching, and successive waves of enthusiasm have arisen for LARPs, PBLs, and tablet computers as the new paradigms of learning. Commentators frequently deplore the lecture as the prototypically didactic, obsolete learning technology, but some have been so quick to embrace all techniques after interactive, customized, and self-paced learning objectives.

This is no arcane academic matter. The LCME, the organization that accredits US medical schools, set (and limits the number of hours per week students may spend in lectures. So seriously does the organization take this mandate that, in October of 2011, it placed one of Texas's medical schools on probation, in part because its curriculum relied too heavily on "passive" approaches to learning—foremost among them, lectures. In medical education circles, "lecture" is fast becoming a term of derision.

And yet, recalling the words of Mark Twain, widespread reports of the lecture's demise are somewhat exaggerated. I believe that we should resist this venerable educational method before we sign its death certificate. To be sure, some lectures events exert a narcotic effect in the attention and enthusiasm of learners, and there are more than a few lecturers in health professions schools whose impact can best be described as concerning. But there are boring small group sessions, too, and even

Twilight of the Lecture

The trend toward "active learning" may overthrow the style of teaching that has ruled universities for 600 years.

OF CRAIG LANIERT

After nearly 30 years, Eric McMillan, professor of physics, was elected lecturer in the RNC getting a lifetime appointment mainly because he had been at the time his name came up.

an article in the
Intervista State pe
miskrivica in
gale; language
including all con
cepts as popular
of it to become
interviews Un
tion in the world
had taught the
one "Adrian was
one into concept
the term.

is a leading exponent but when it came to the meanings of these things (to Aristotelian logic—for example, they could not apply to something about a real world on a heavy trade and to reflect the heavy trade, they were not taught a lot.)

his own students, getting upset when the school asked "How many meetings have I been to?" I think about some high school students and how they are grouped together. All these were excellent

"The students did well on notebook-style problems," he explains. "They had a bag of tricks, formulas to apply. But that was only solving problems by rote. They floundered on the simple *surv* problems, which demanded a real understanding of the concepts behind the kernels."

Some soul searching followed. "That was a very discouraging moment," he says. "We're not such a great creative culture as might have been." But they didn't stop there. There's something wrong with the act—it's a price issue! How low it is to accept that the blame lies with yourself!

Knowledge points are not too hard to grasp for readers. Reviewing the use of conceptual understanding, Masson's book did a good job of explaining the paradigm in the class, but there were some small details that were confused. **"There had been a big"**

had someone in my teaching career" he recalls. "I said, 'Why do you teach management and ethics?'—involuntarily. It was a full 10 seconds of my graduate school training and I wrote one of my answers: 'I've asked the puzzling question, "Is our workplace toxic?" and Martin [Luther King Jr.] said three minutes, but he kept it for 30 minutes, and my response was—I had two years in prison in my workplace. But the class said, "OK, Martin L. is more so."

"Here's what happened," he continues. "First, when we'd moved his thoughts answer and the other doctor, the first one was immediately removed the second—and I should have said someone from the wrong answers when they had the right one. Most interesting, a fellow medical doctor like to reach them than Professor Morris—and that's the case of the method. You're a doctor and you're only really interested, so you will know where you go looking up because it's not this kind of medical research, but it's not the way you

Joey Williams, Polk's manager, says he got hung up on his great idea to turn it into a college program, "members how difficult it was back then. He has not understood what a business means for."

Historians of mathematics go as far as "partialization" or "intensive learning," a pedagogical method that has spread far beyond physics and chemistry to encompass nature in *general*.

EKSAMENS- REVOLUSJONEN

Råd og tips om eksamen
og alternative
vurderingsformer

Arild Raaheim


GYLDENDAL
AKADEMISKE

Forelesning

Øvinger

Eksamen



prosjekter



bøker



foredrag*



video



quiz



refleksjon



interaksjon



Team-Based
Learning

1: Team-Based Learning

2: Kursutvikling

3. Refleksjon

1. Team-Based Learning



Teams

Team

T 4

Awesome Team Name:

FOURIKÅL

1

2

3

4

5

6

7

8



Preparation



Readiness Assurance

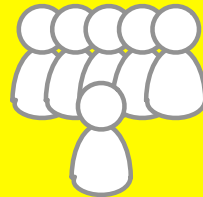
iRAT



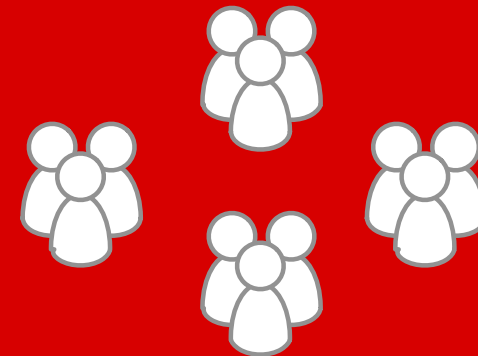
tRAT



Mini-lecture



Team Application Activities



Forberedelse

1 eller 2 kapitler, videoer, ++

Preparation



Readiness Assurance

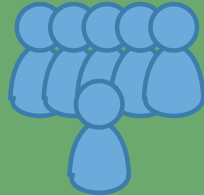
iRAT



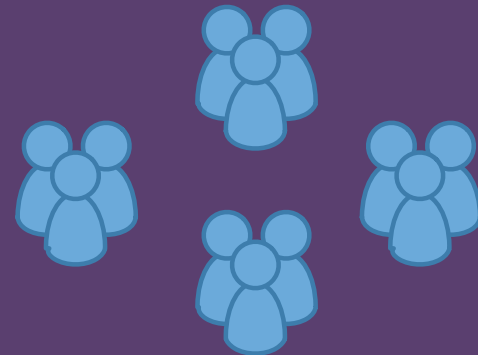
tRAT



Mini-lecture

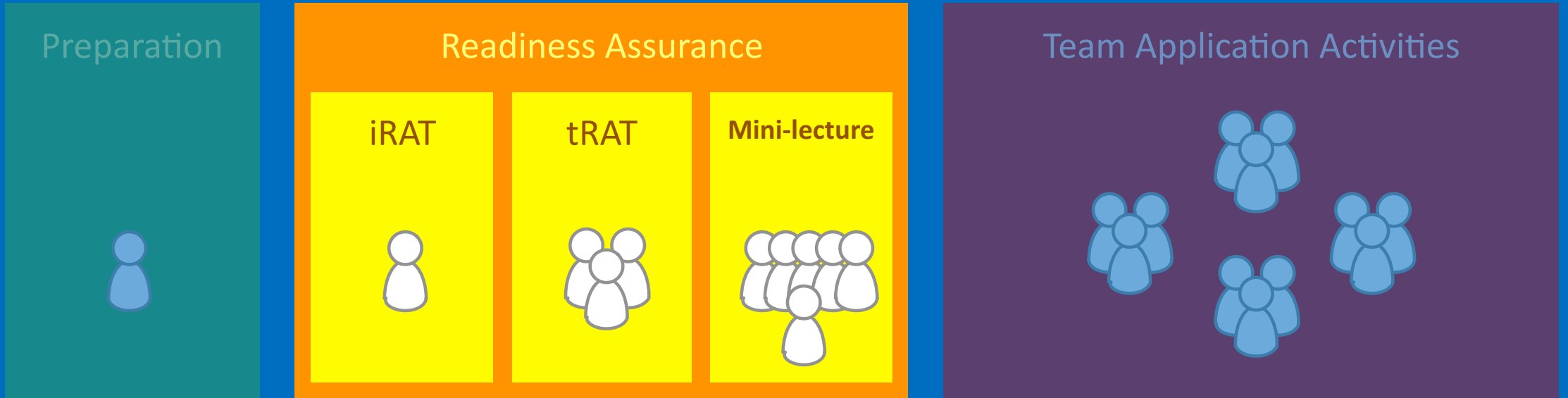


Team Application Activities



Readiness Assurance: Individual

multiple-choice, 10 spørsmål, 20 minutter

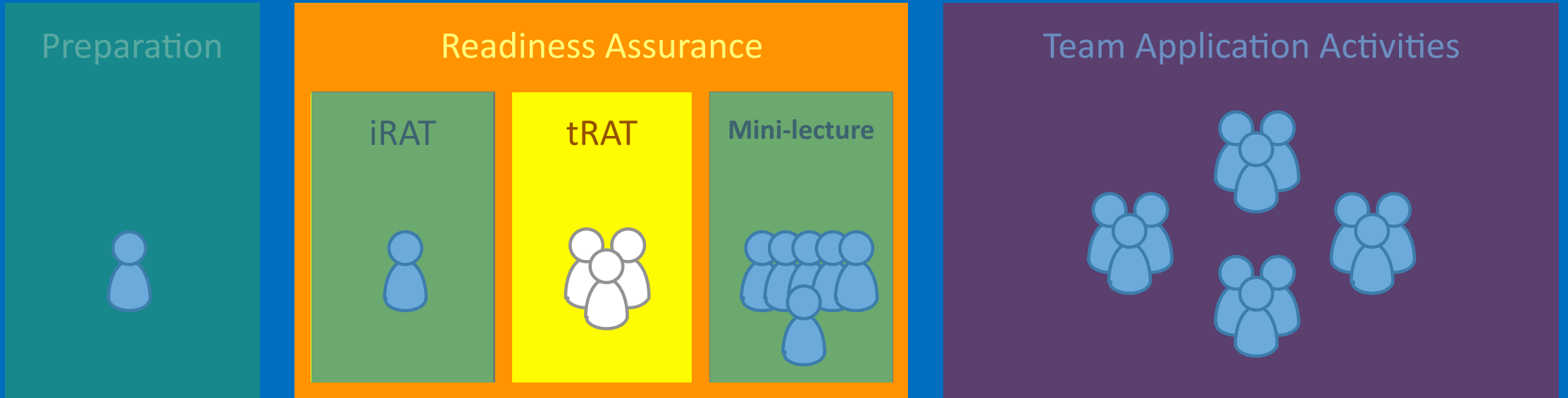


i-RAT



Readiness Assurance: Team

samme test, 20 minutter, en løsning per team



t-RAT



t-RAT

IMMEDIATE FEEDBACK ASSESSMENT TECHNIQUE (IF ATG)

Name _____ Test # _____

Subject Team A (9) Total _____

SCRATCH OFF COVERING TO EXPOSE ANSWER

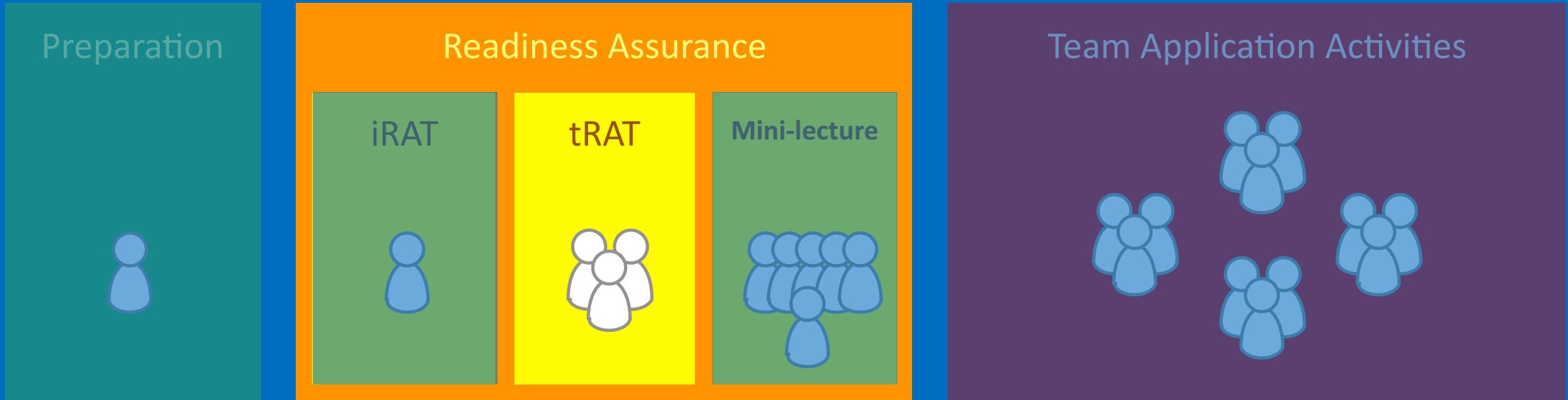
| | A | B | C | D | Score |
|-----|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------|
| 1. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ___ |
| 2. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ___ |
| 3. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ___ |
| 4. | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ___ |
| 5. | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ___ |
| 6. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ___ |
| 7. | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ___ |
| 8. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ___ |
| 9. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ___ |
| 10. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ___ |



Readiness Assurance: Appeal

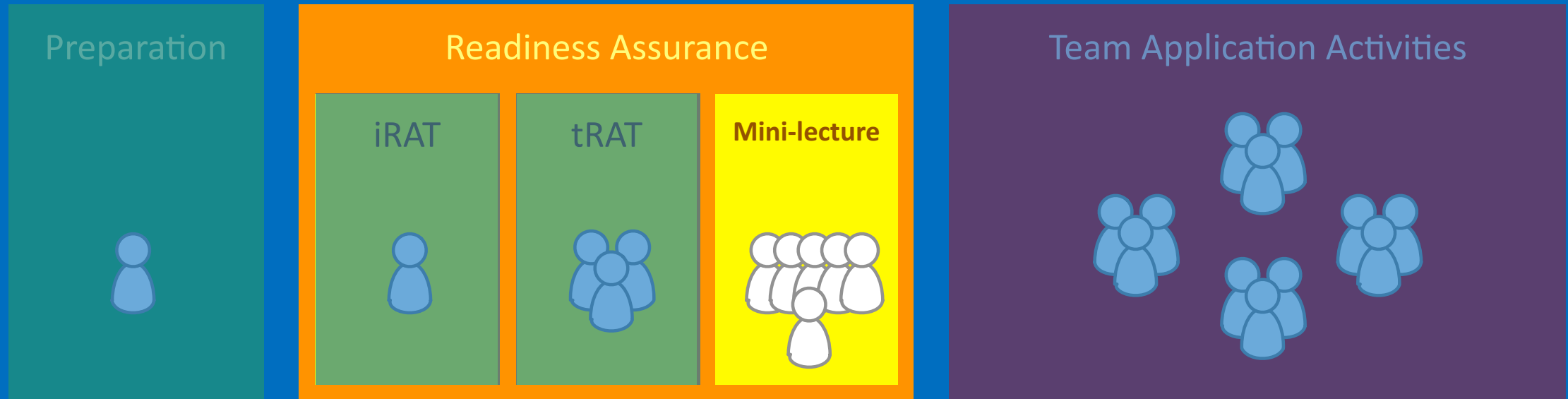
skriftlig, leveres inn

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

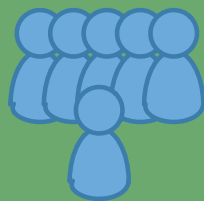
iRAT



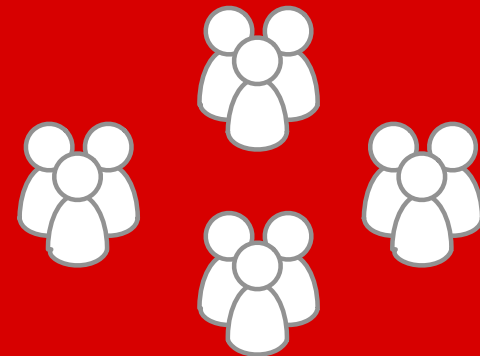
tRAT



Mini-lecture



Team Application Activities



A large, stylized, light blue capital letter 'S' centered on a solid blue background.

Significant
Problem

A large, stylized, light green capital letter 'S' centered on a solid green background.

Same
Problem

A large, stylized, light yellow capital letter 'S' centered on a solid orange background.

Specific
Choice

A large, stylized, light pink capital letter 'S' centered on a solid magenta background.

Simultaneous
Report



A

B

C

D

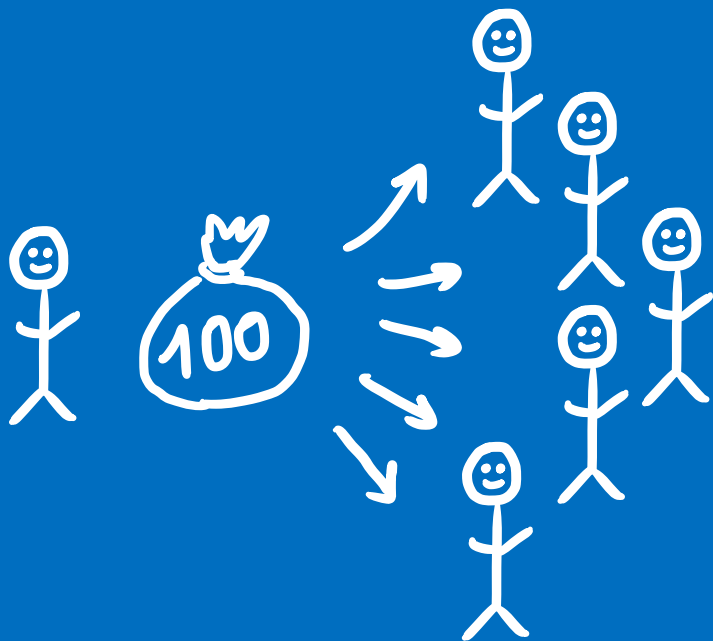
Significant
Problem

Same
Problem

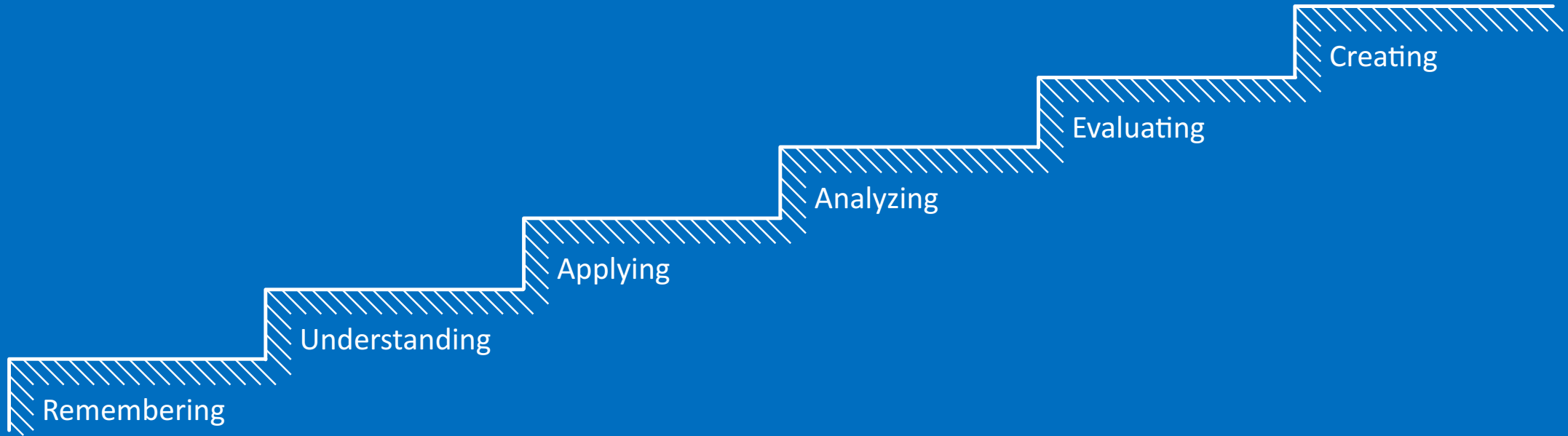
Specific
Choice

Simultaneous
Report

Peer Evaluation



| | Student 1 | Student 2 | Student 3 | Student 4 | Student 5 | Student 6 |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Student 1 | | 20 | 20 | 20 | 20 | 20 |
| Student 2 | 20 | | 20 | 16 | 22 | 22 |
| Student 3 | 20 | 20 | | 20 | 20 | 20 |
| Student 4 | 20 | 20 | 20 | | 20 | 20 |
| Student 5 | 20 | 20 | 20 | 20 | | 20 |
| Student 6 | 20 | 20 | 20 | 20 | 20 | |
| | 100 | 100 | 100 | 96 | 102 | 102 |



Preparation

A green rectangular box containing the text "Preparation" in light green at the top and a white icon of a single person at the bottom.

Readiness Assurance

iRAT

tRAT

Mini-lecture

An orange rectangular box containing the text "Readiness Assurance" at the top. Below it are three yellow rectangular boxes. The first is labeled "iRAT" and contains a single person icon. The second is labeled "tRAT" and contains an icon of three people. The third is labeled "Mini-lecture" and contains an icon of a group of people.

Team Application Activities

A red rectangular box containing the text "Team Application Activities" at the top and an icon of four groups of people at the bottom.

2. Kursutvikling

Design av reaktive systemer 1

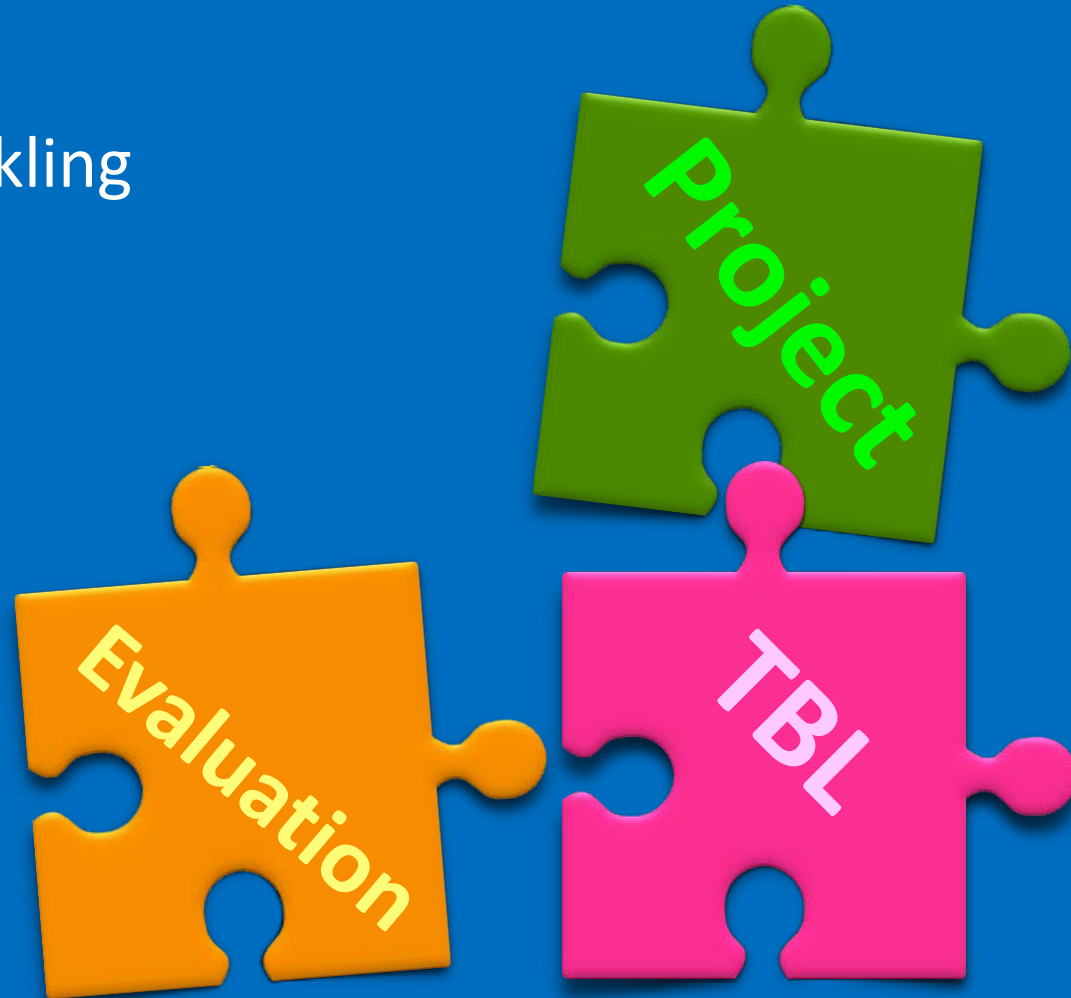
75.. 120 studenter

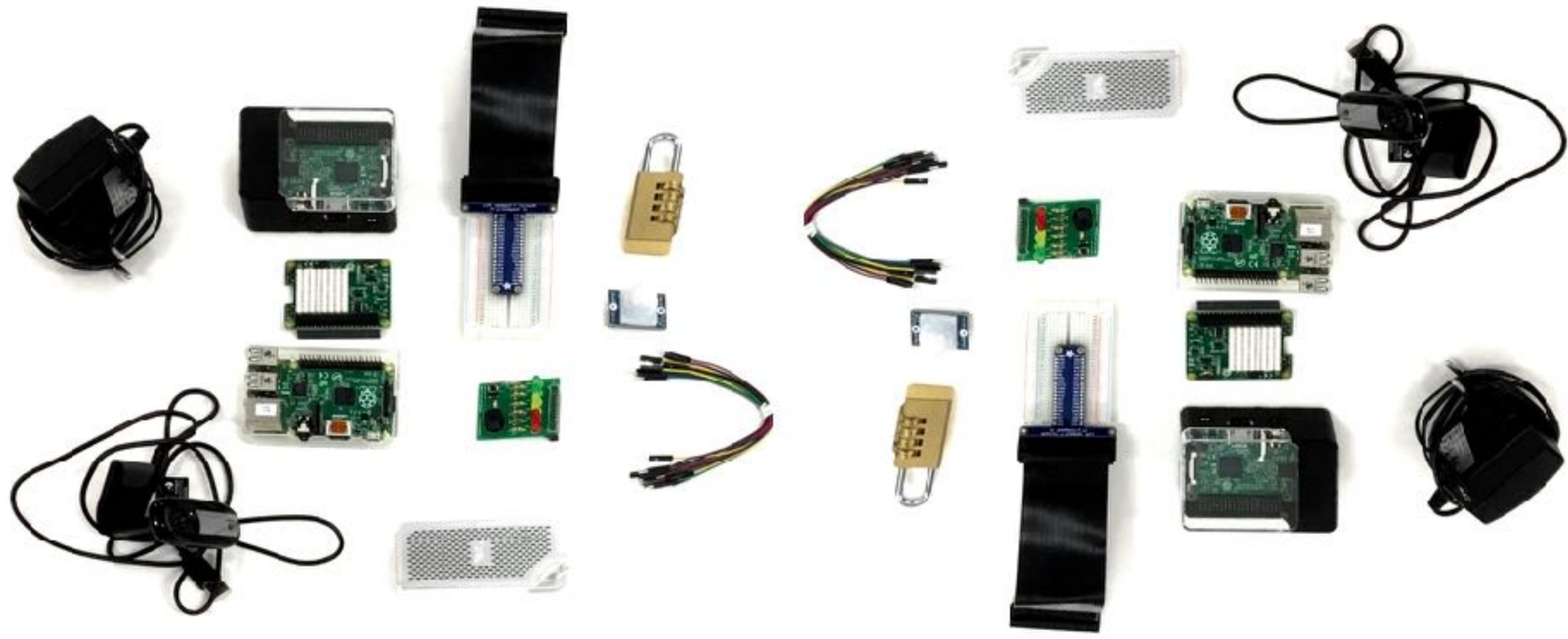
system- og programvareutvikling

språk og modeller

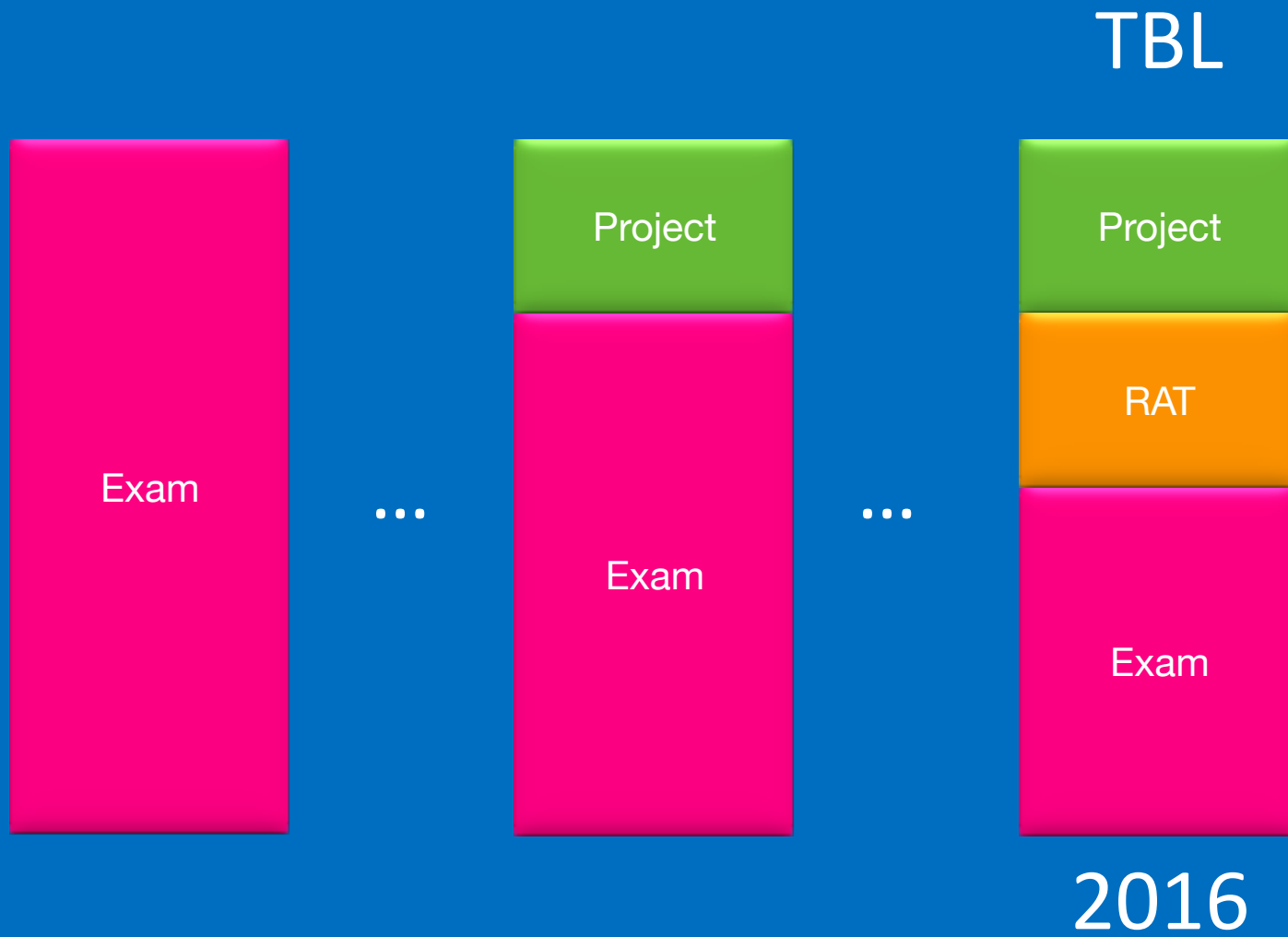
arkitektur

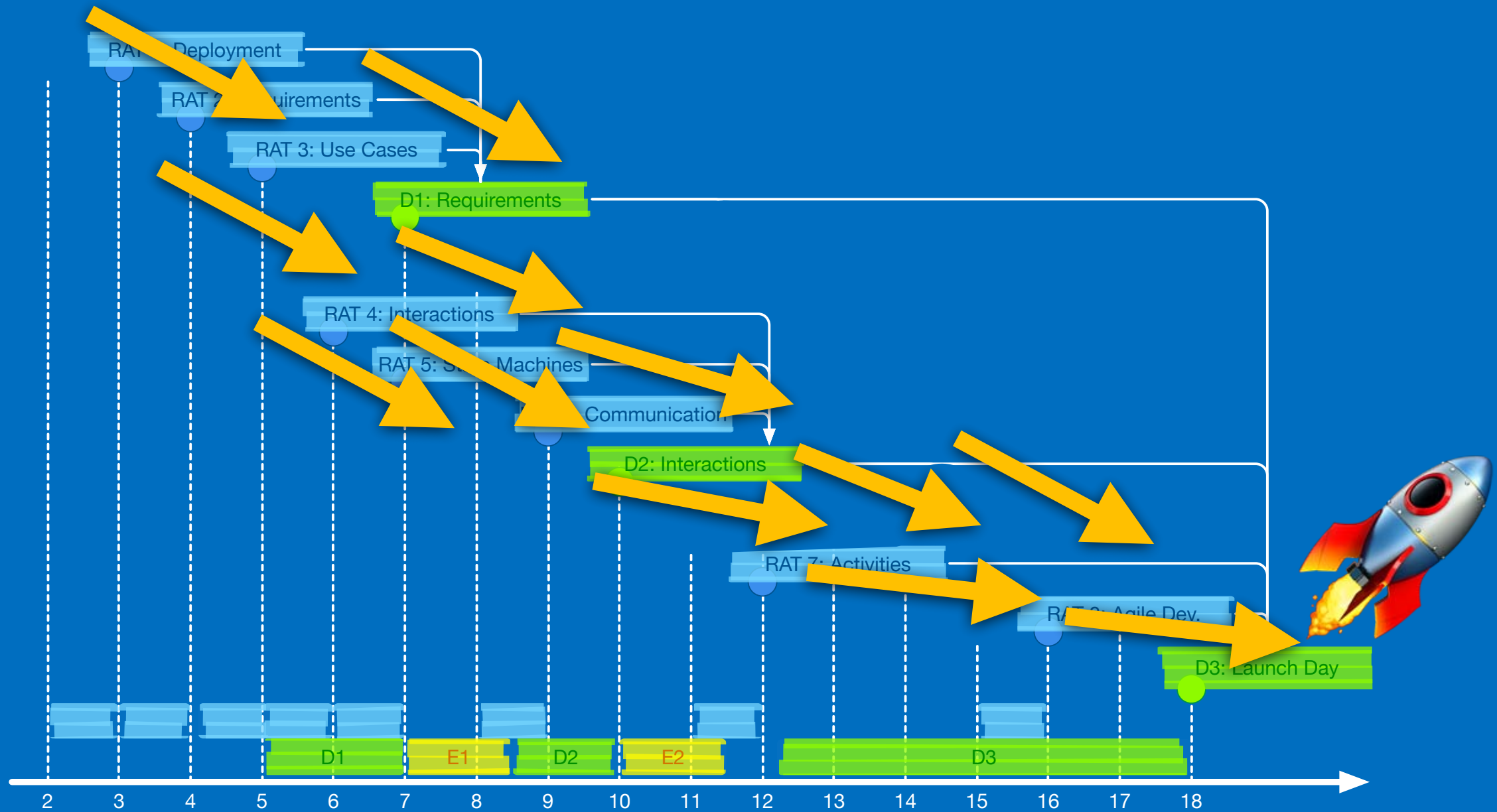
prosess og metode



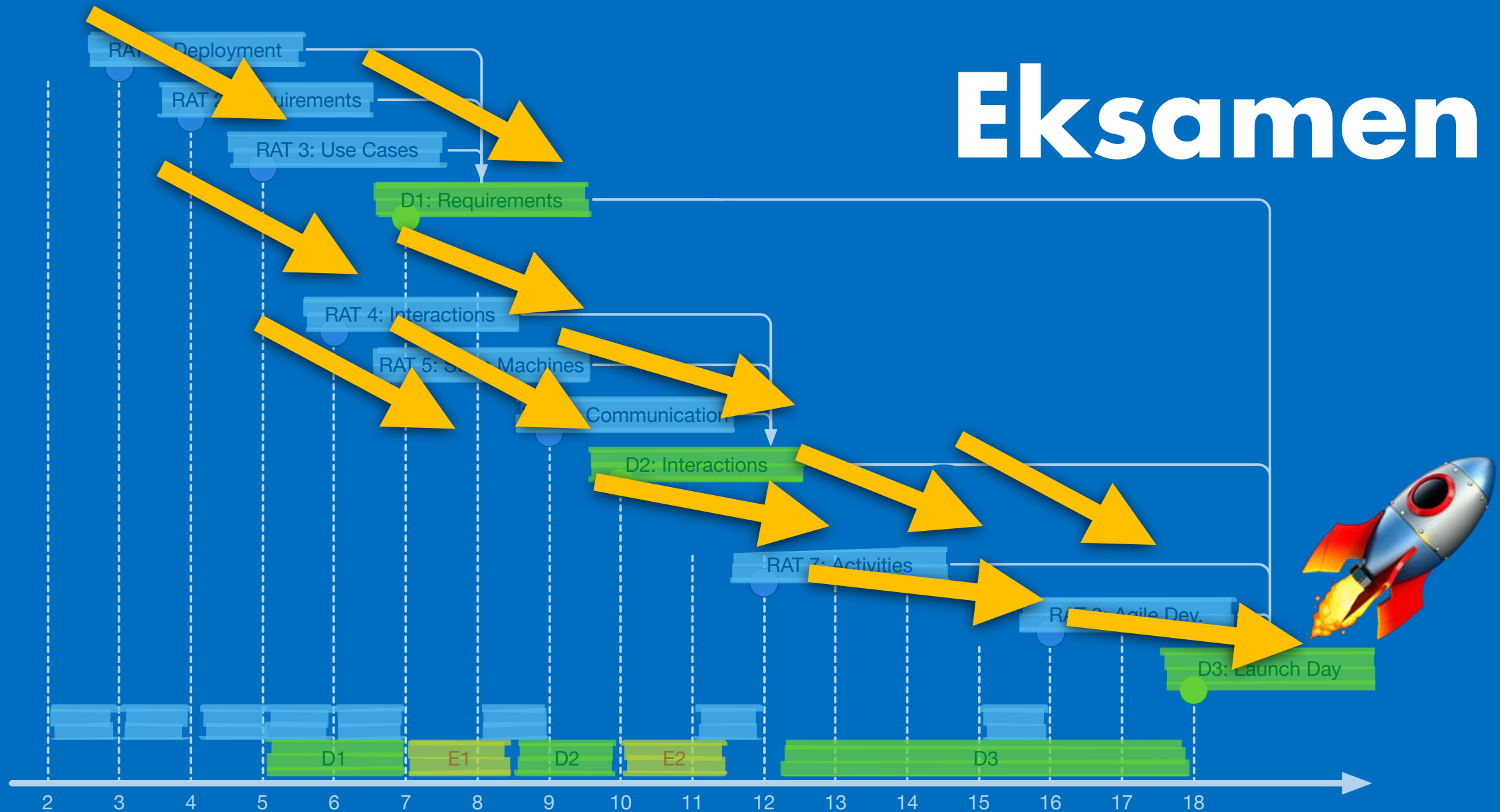




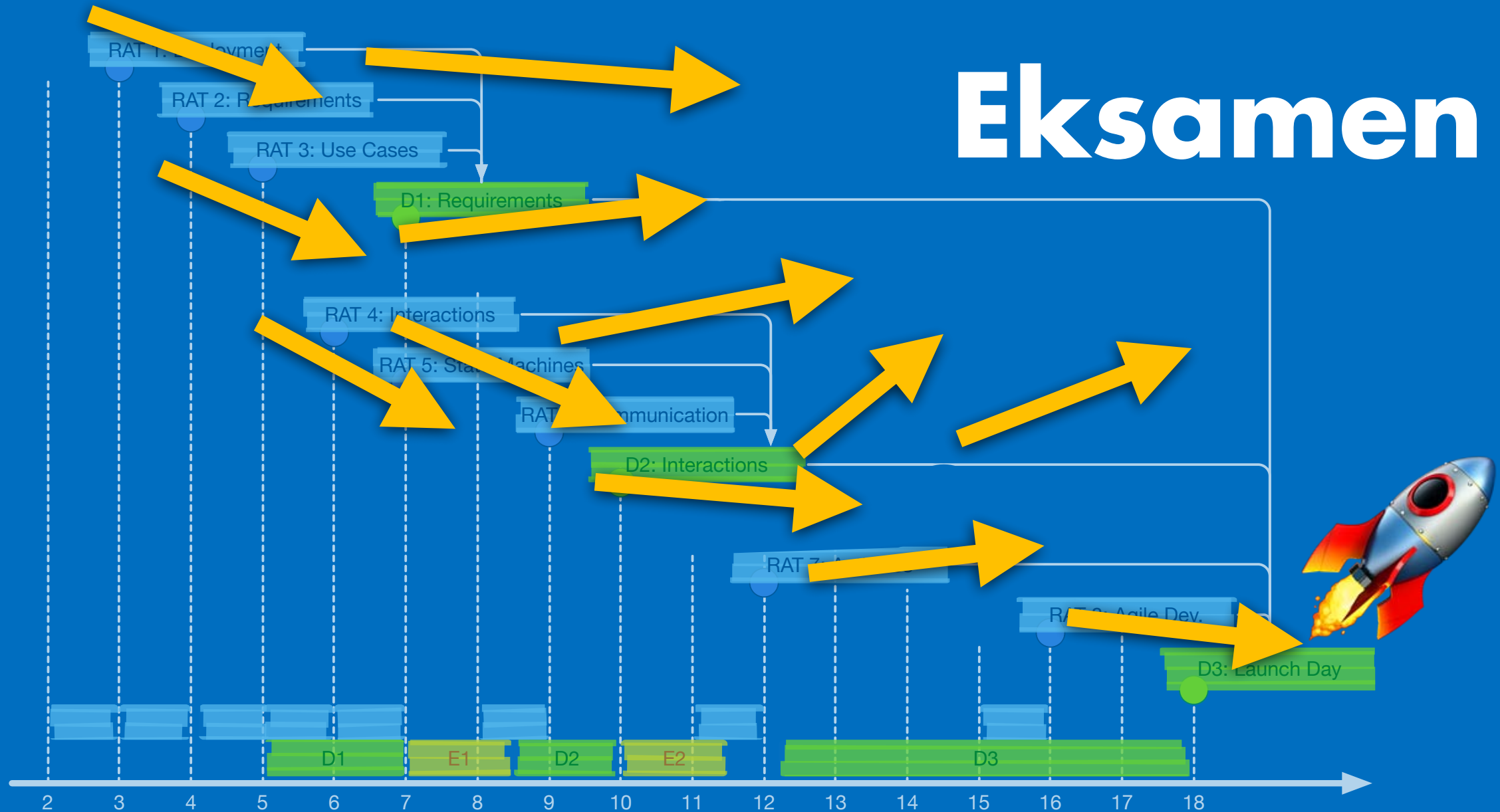


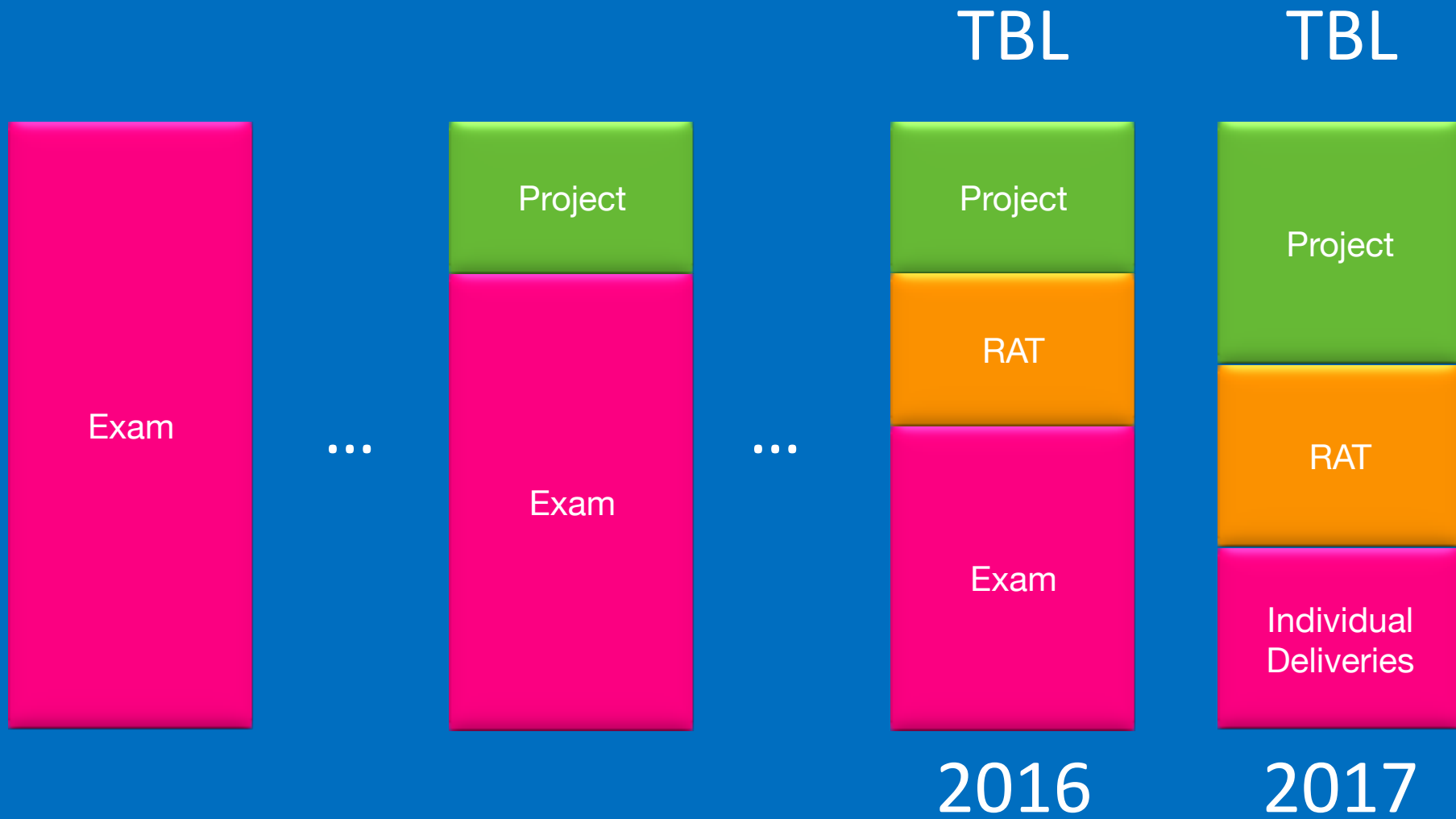


Eksamen

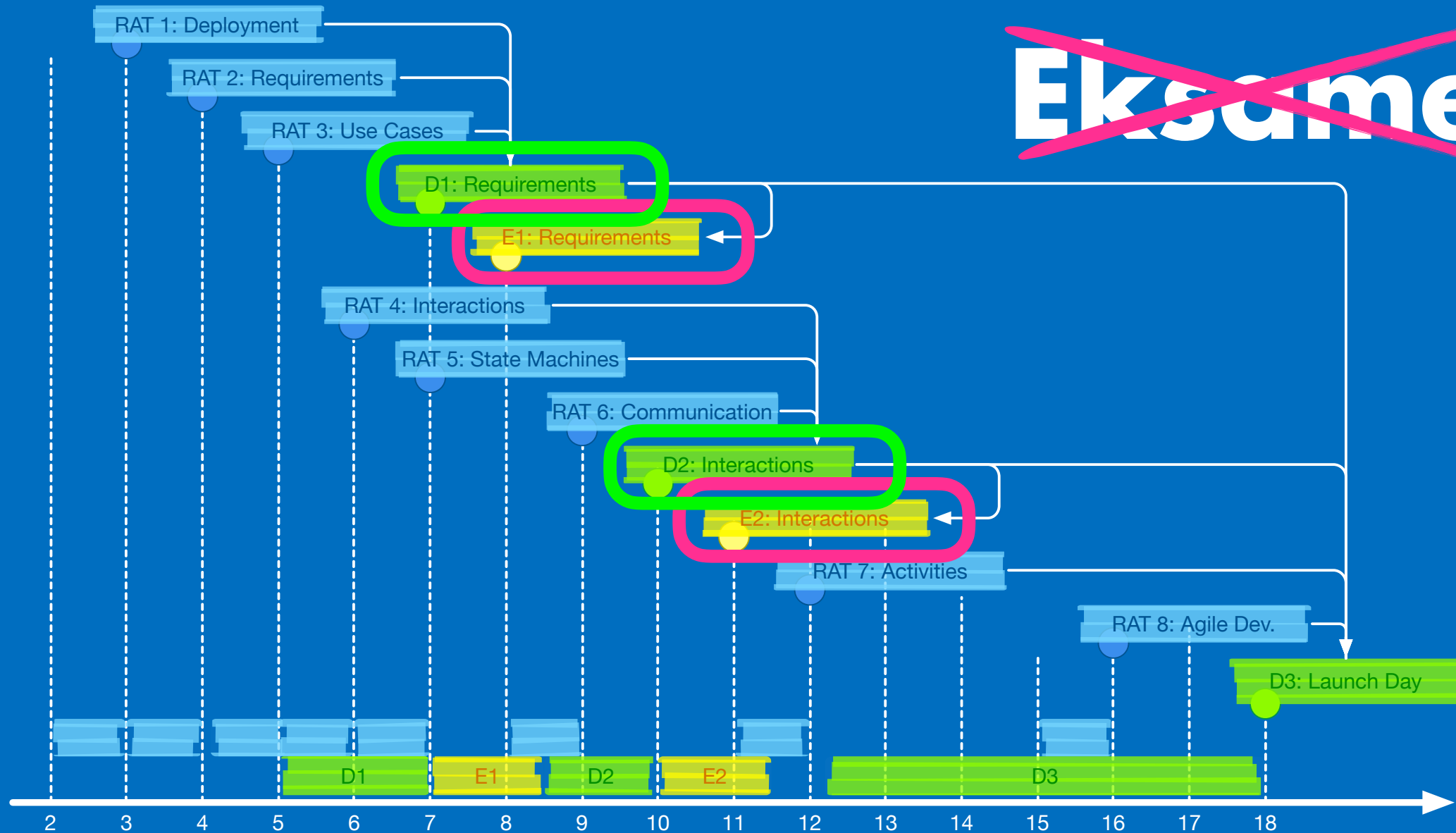


Eksamen

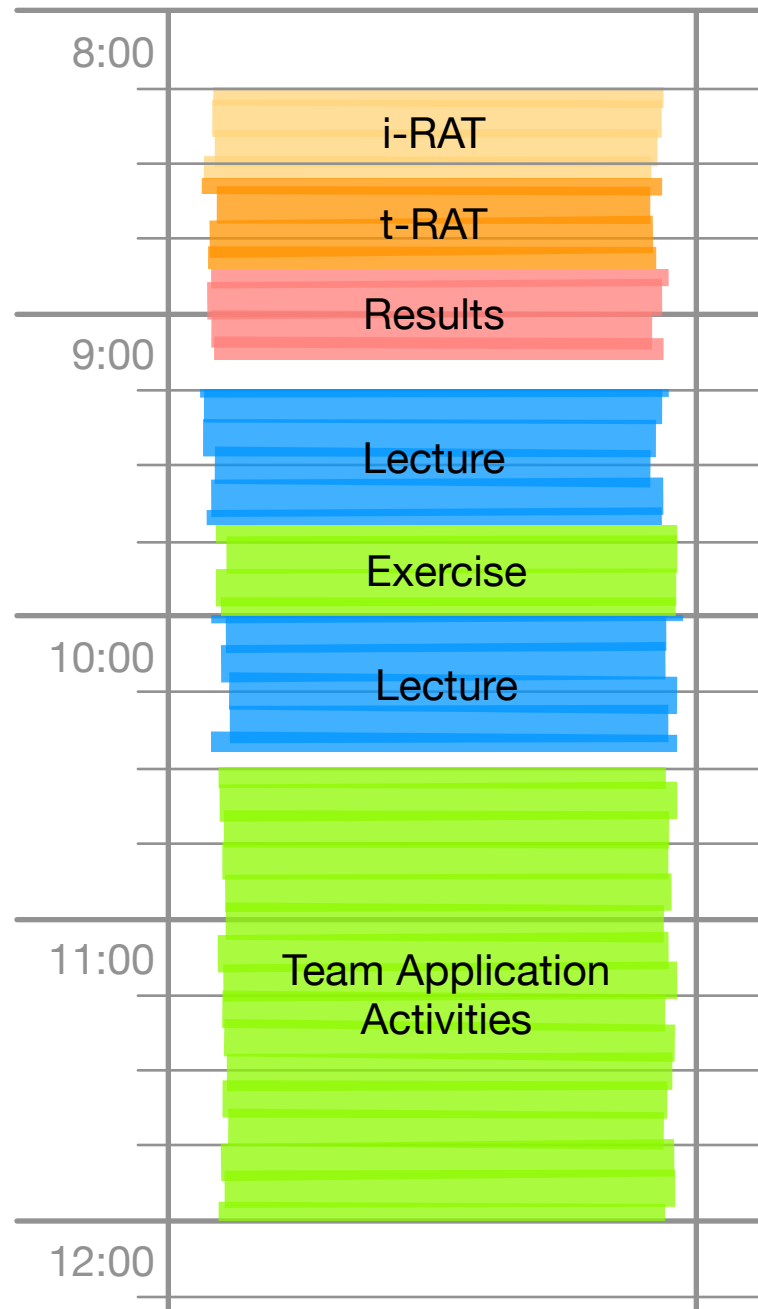




~~Examen~~



Timeplan



0... intro



Pensum Chap. 1
UML Deployment

1... deployment



Pensum Chap. 2

2... Requirements



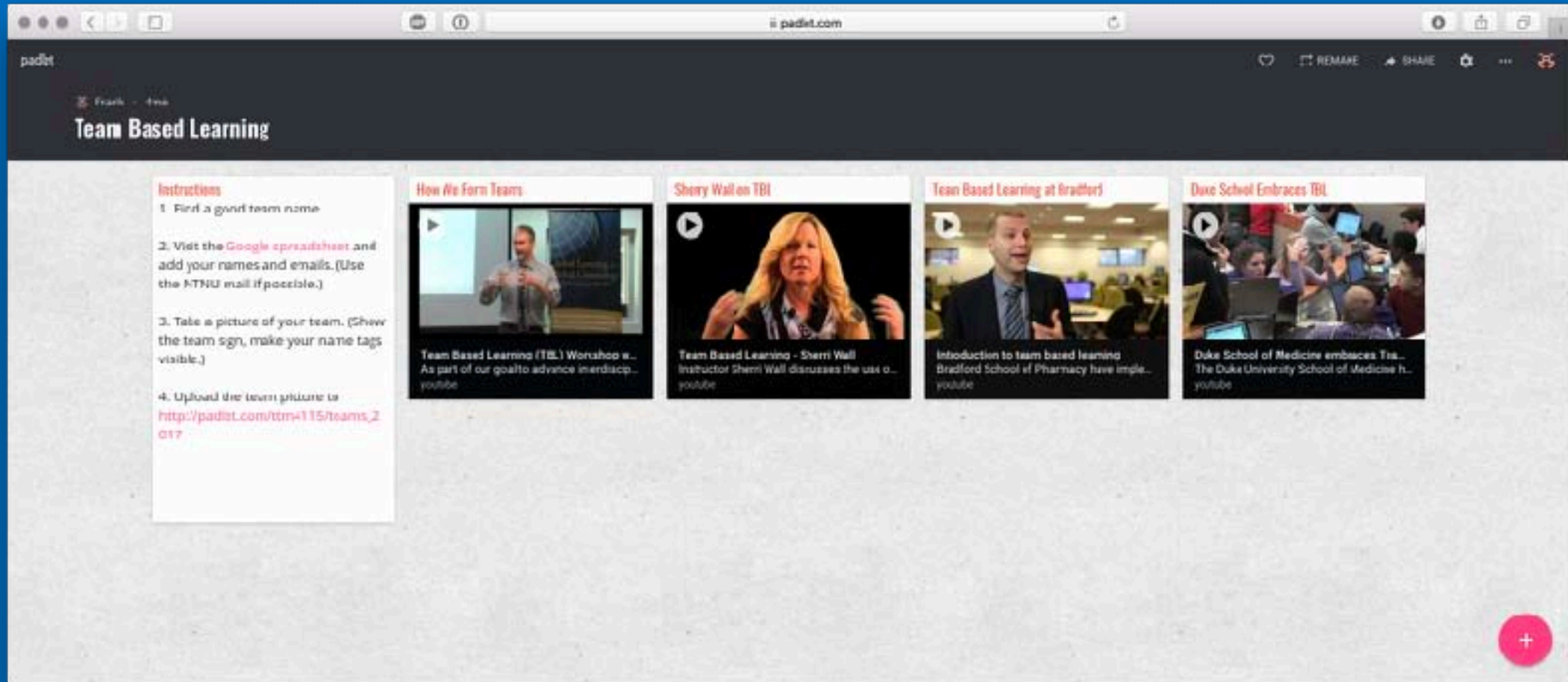
Pensum Chap. 3
UML Use Cases

3... Use cases



JWESOK?

Info til studenter



The screenshot shows a Padlet board titled "Team Based Learning" by user "Frank - fms". The board contains the following content:

- 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://padlet.com/ttm4115/teams_2017
- How We Form Teams**
 - Team Based Learning (TBL) Workshop w...
As part of our goal to advance interdiscip...
youtube
- Sherri Wall on TBL**
 - Team Based Learning - Sherri Wall
Instructor Sherri Wall discusses the use o...
youtube
- Team Based Learning at Bradford**
 - Introduction to team based learning
Bradford School of Pharmacy have imple...
youtube
- Duke School Embraces TBL**
 - Duke School of Medicine embraces Tra...
The Duke University School of Medicine h...
youtube

A red circular button with a white plus sign is located in the bottom right corner of the board.



Teams

Meekah
Team 16



RAT SLAYERS
Team 3



District 9
Team 9



Team 4TW
Team 4



Hjernevask med zalo
Team 7



10M
Team 10



#1
Team 1



Fabulous 5
Team 5

Team 12 - The Usual Suspects
Team 12



A Human Team
Team 6



HELSA er god
Team 14



Team Rocket
Team 2



LuckyLuke
Team 13



Stryk
Team 8



Reaktivistene
Team 15





Teams

1
Barbara
Perrella
Sandoz

2
Ewen
James
Miriam

3
James
Lin

4
James
Lin

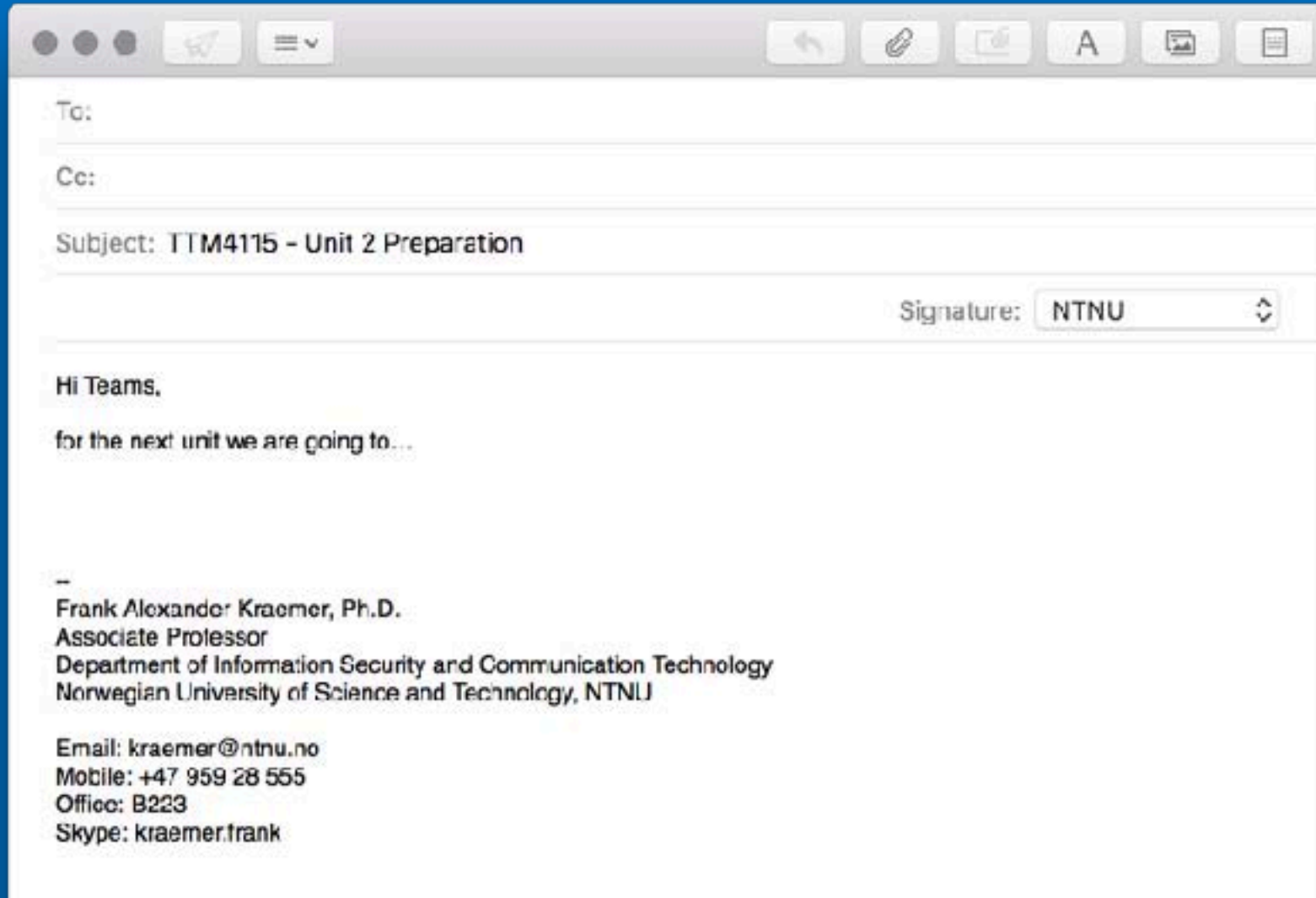
5
James
Lin

6
James
Lin

7
James
Lin

8
James
Lin

Preparation



Without Team-Based Learning

| | | | | | | | | | | | | | | | | |
|-------------|-------------|-------------|-------------------------------------|--------------|---|--------------|--------------|---|--------------|--------------|---|--------------|--------------|---|--------------|---------------|
| Full name | | | | | | | | | | | | | | | | |
| <div></div> | <div></div> | <div></div> | <div>1</div> | <div>2</div> | - | <div>3</div> | <div>4</div> | - | <div>5</div> | <div>6</div> | - | <div>7</div> | <div>8</div> | - | <div>9</div> | <div>10</div> |
| Name code | | | Answer to questions (A, B, C, or D) | | | | | | | | | | | | | |

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.

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).

Full name Peter B.

Name code P B 1

Answer to questions (A, B, C, or D) A₁ B₂ - C₃ D₄ - A₅ B₆ - A₇ C₈ - D₉

Instructions:

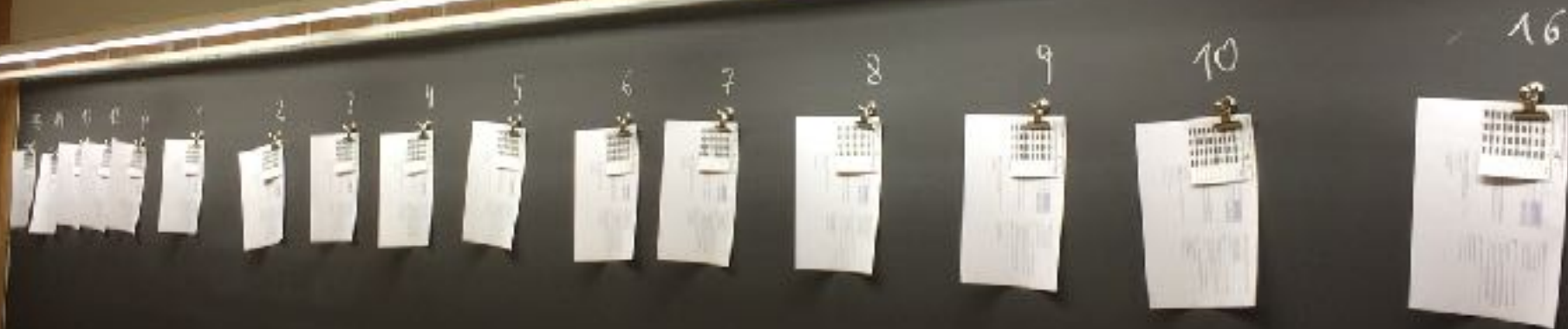
- Select exactly one answer, the one that matches best.
- No helping material is allowed.
- Copy your final answers into the scheme above.

Question 1: The sequence of

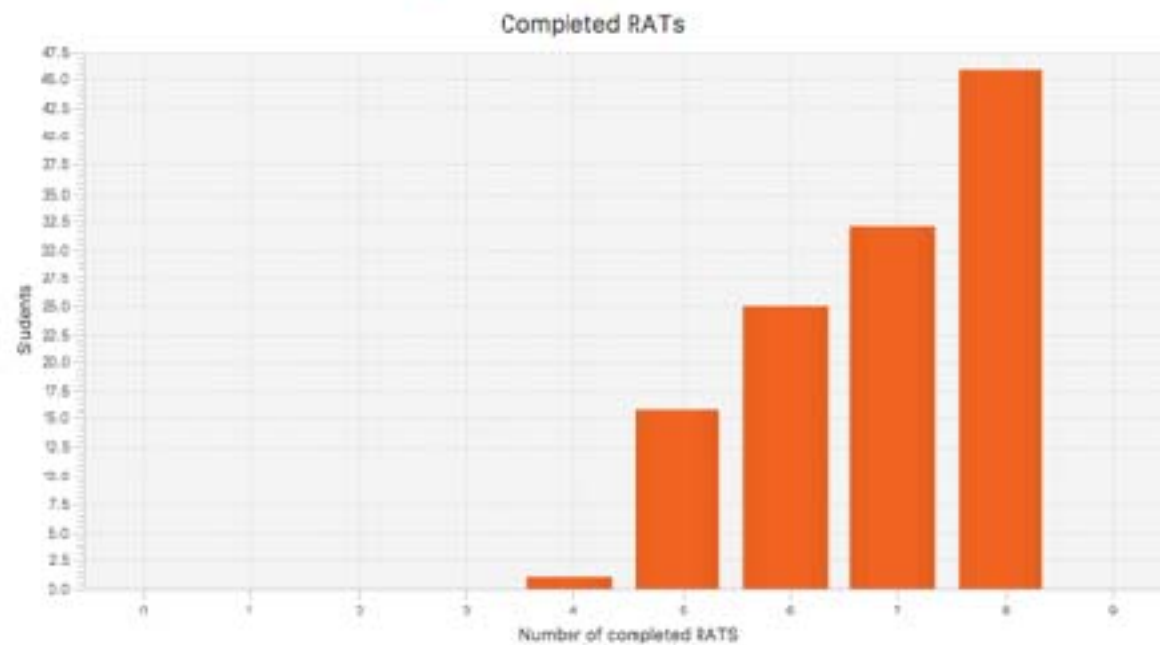
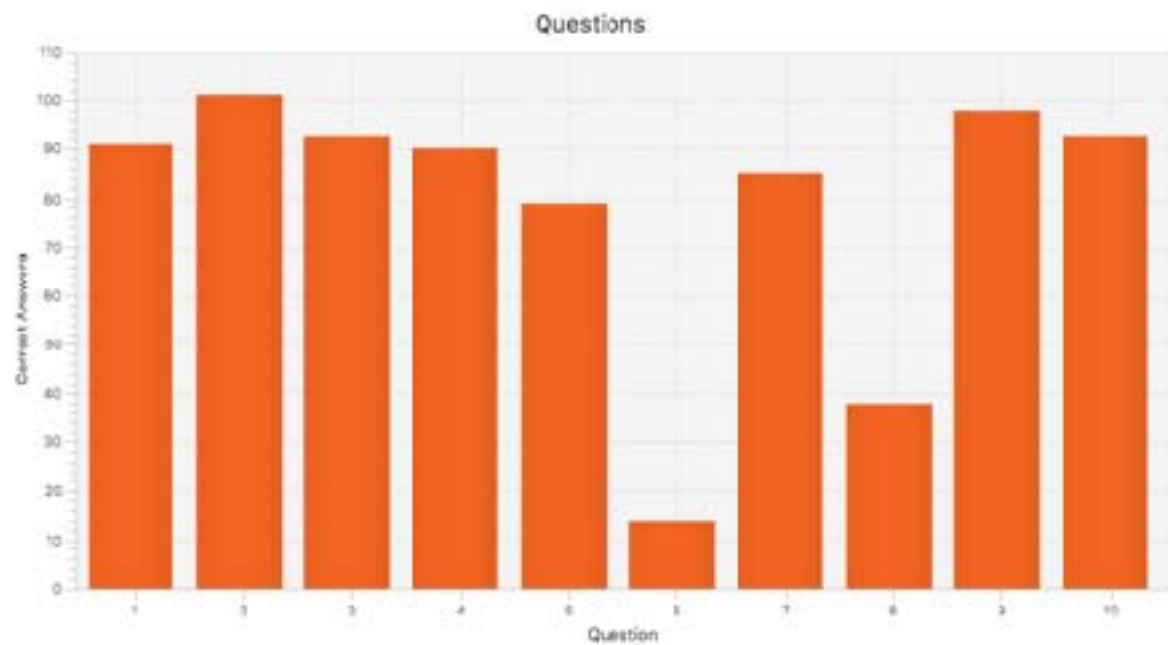
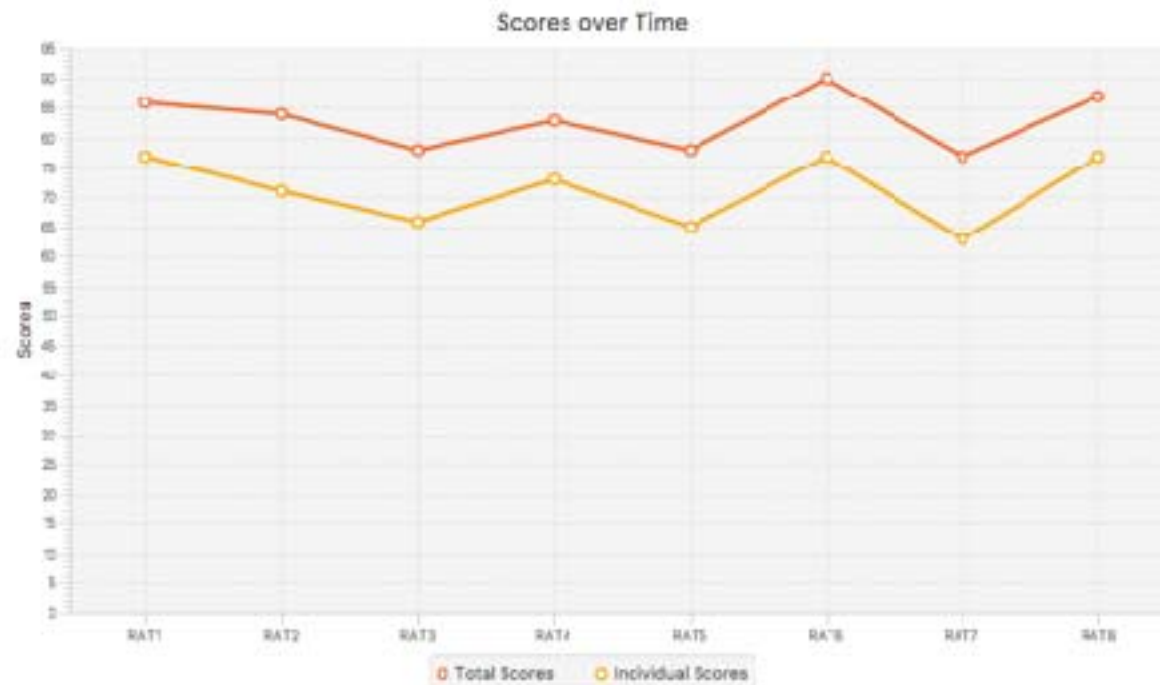
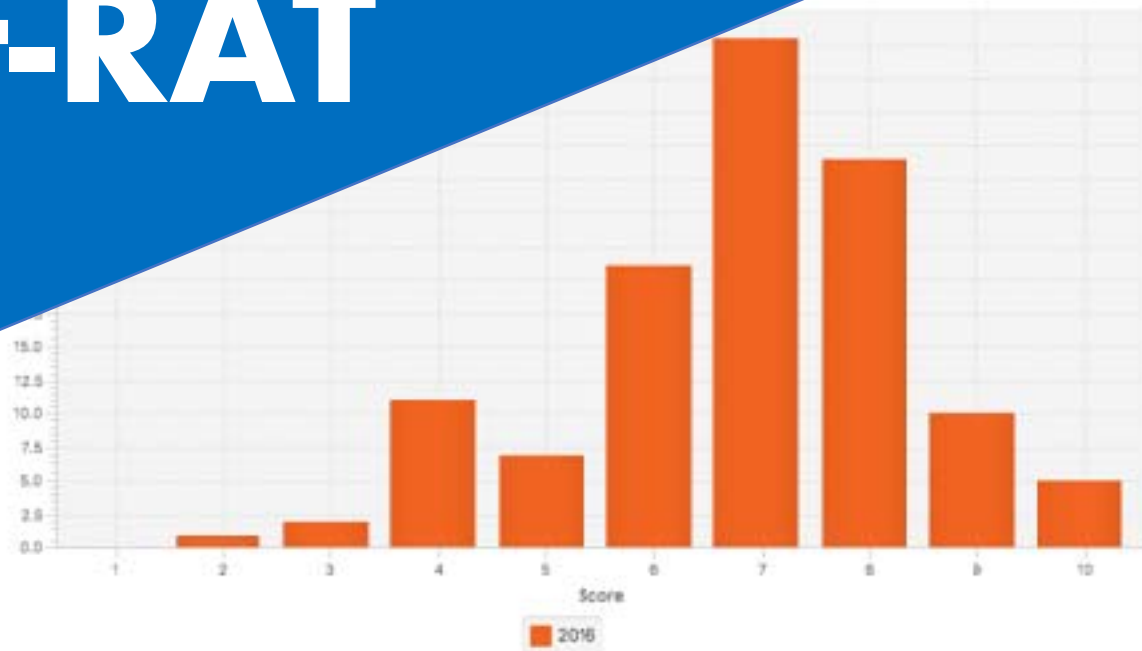
t-RAT

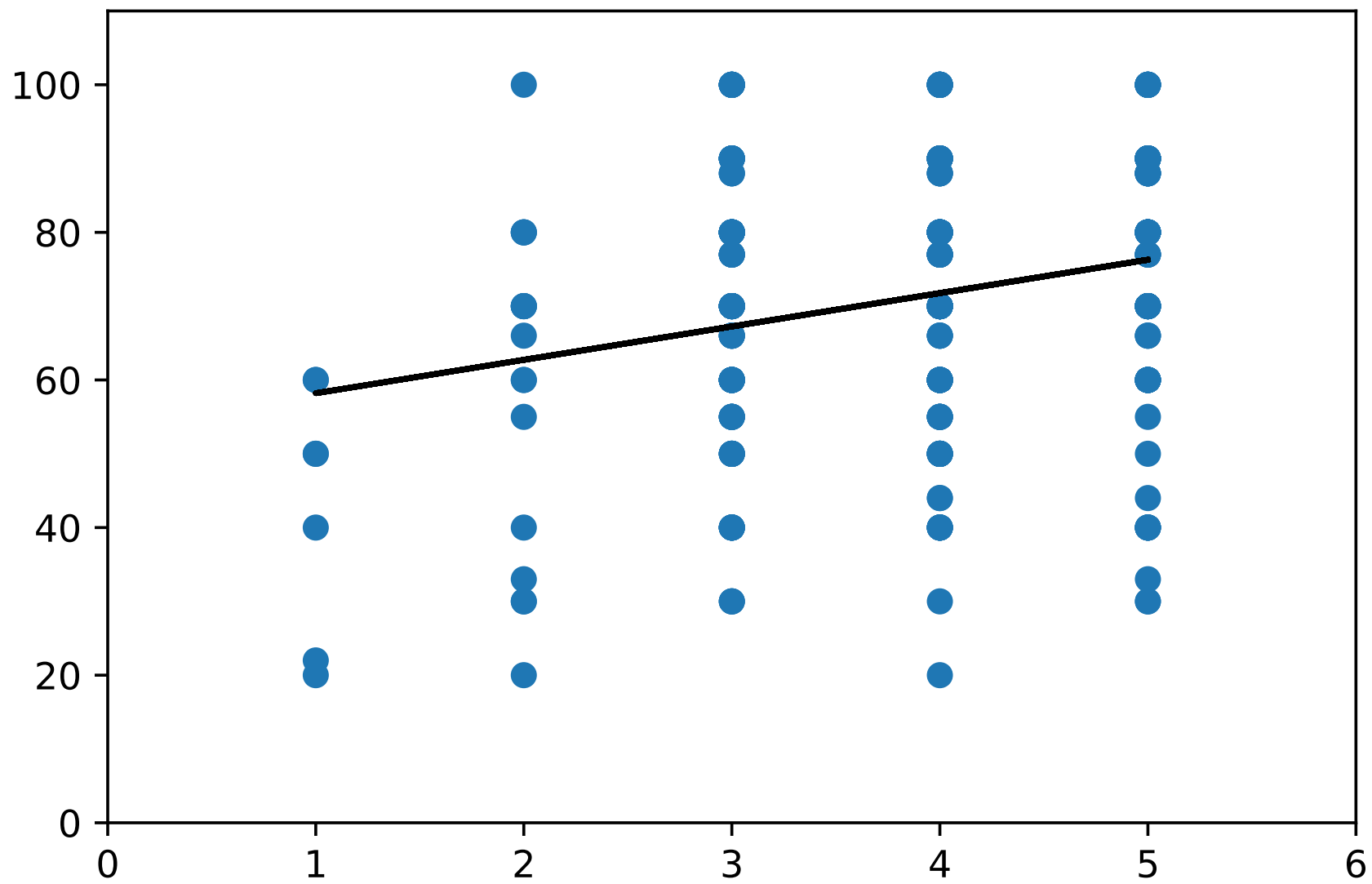
20:00

When
Your name short code is on



t-RAT





S



Significant
Problem

S



Same
Problem

S



Specific
Choice

S

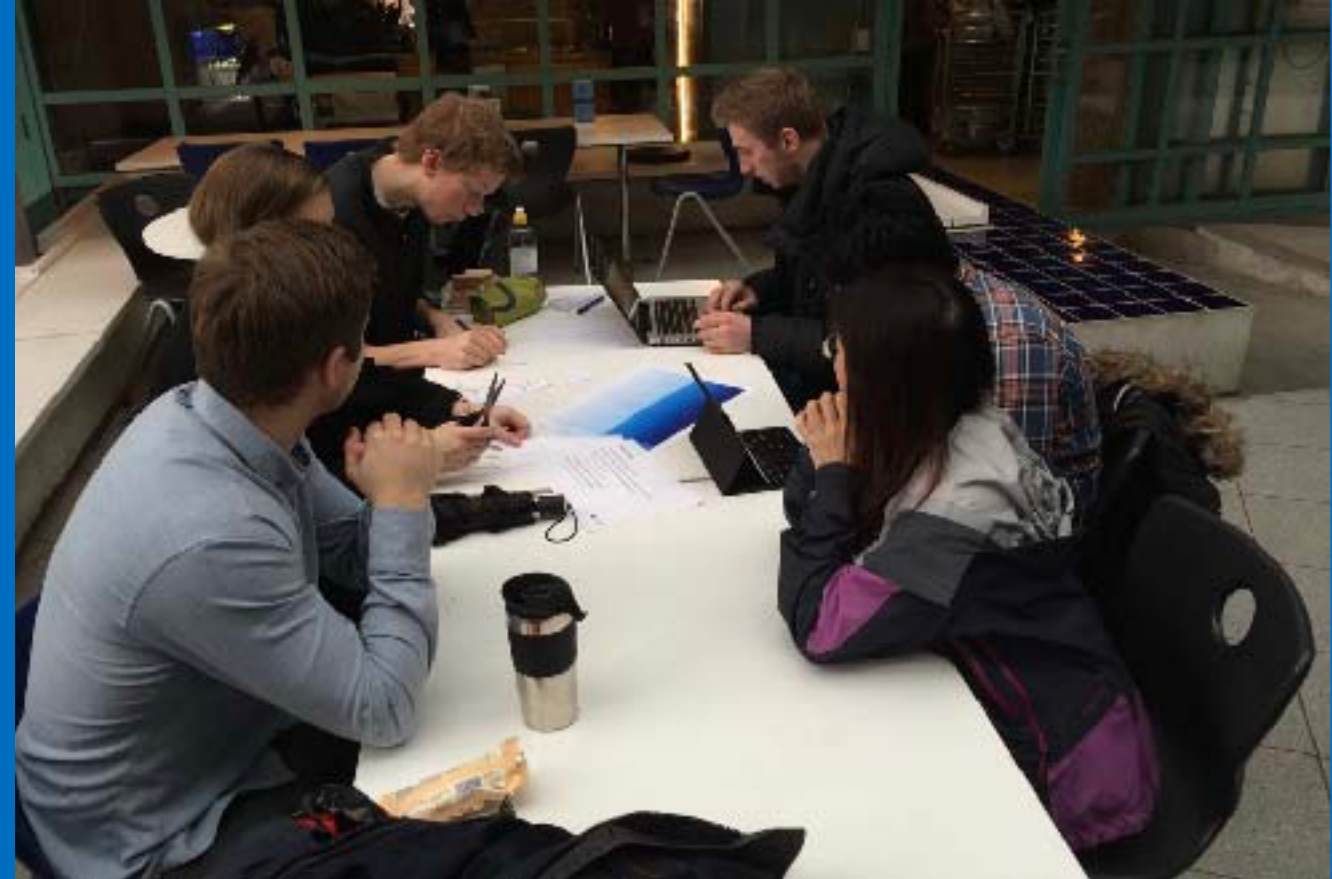
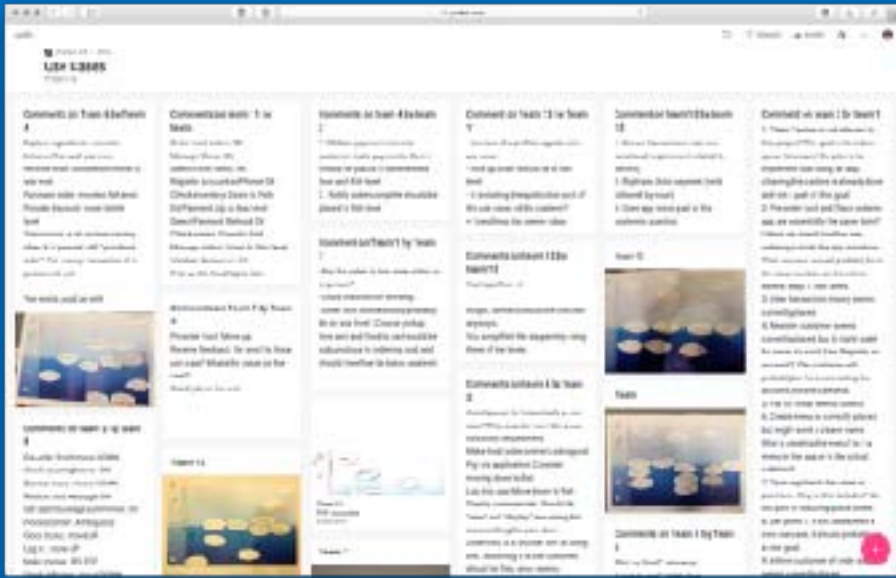
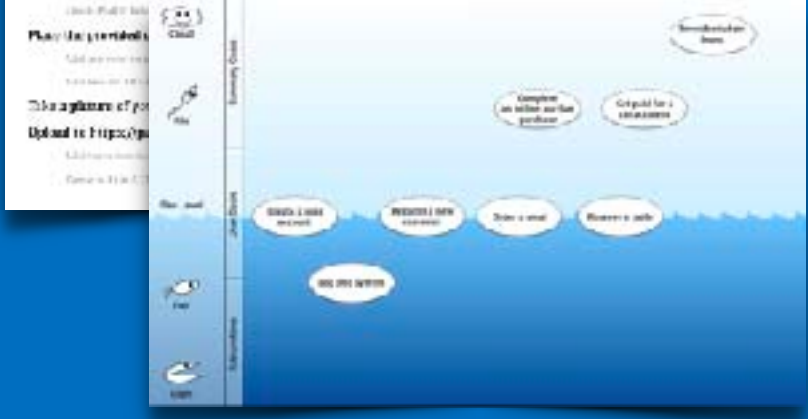


Simultaneous
Report

Team Activity - Phase 1

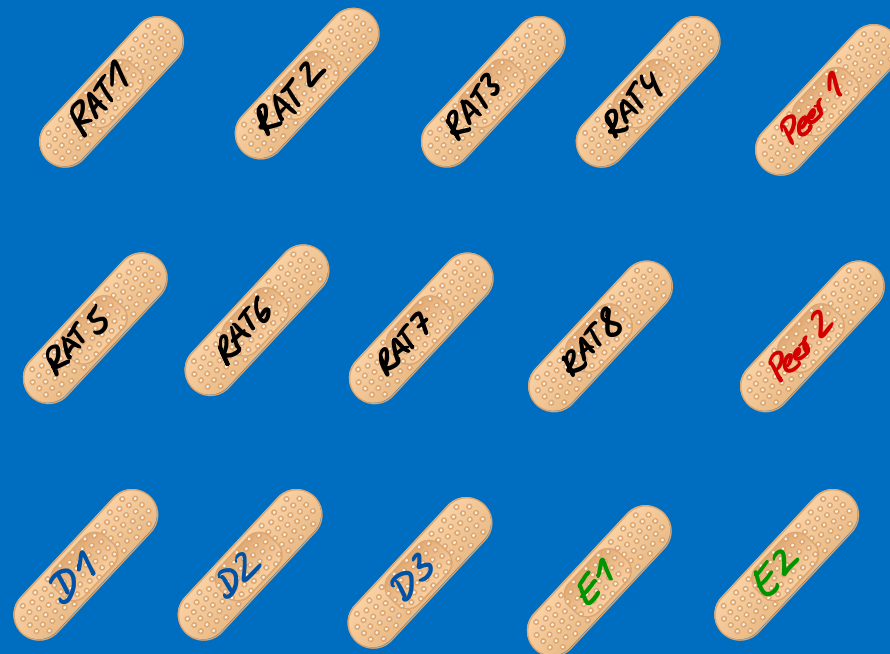
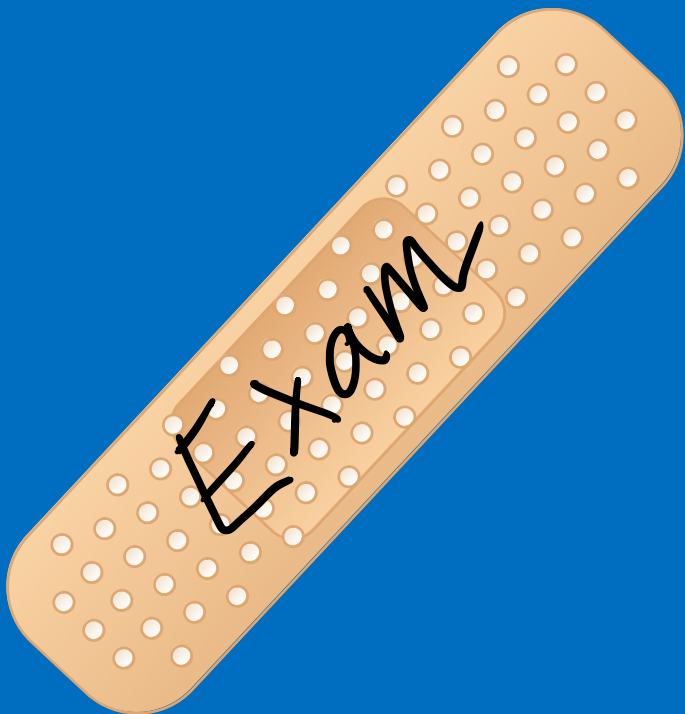
Define the services of your product.

Develop a 1-2 page spec for the service system from last week.



Team n gir tilbake-
melding til Team n-1

3. Refleksjon



team
ca. 50%

Project

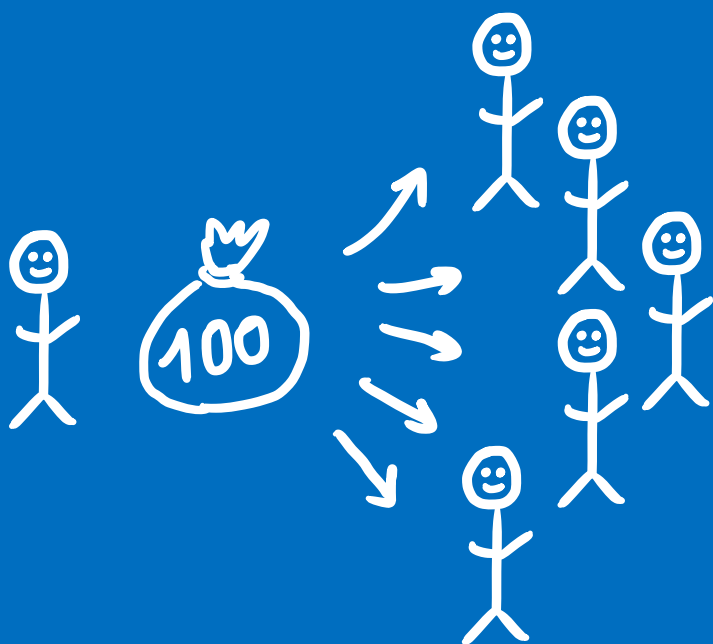
t-RAT

i-RAT

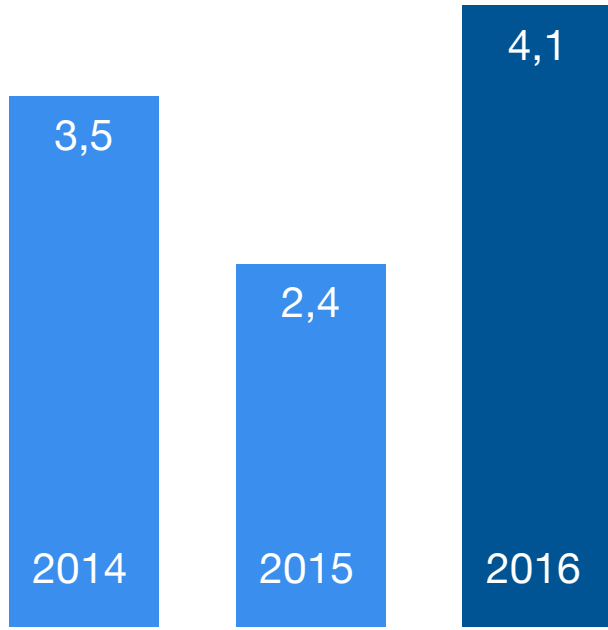
individuell
ca. 50%

Individual
Deliveries

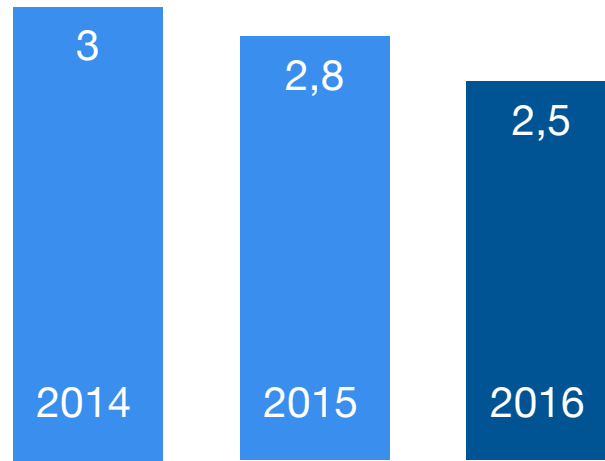
Peer Evaluation



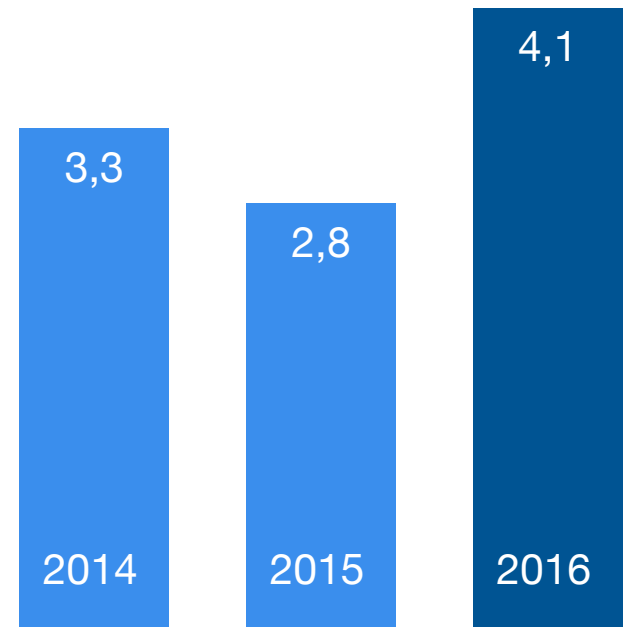
| | Student 1 | Student 2 | Student 3 | Student 4 | Student 5 | Student 6 |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Student 1 | | | | | | |
| Student 2 | | | | | | |
| Student 3 | | | | | | |
| Student 4 | | | | | | |
| Student 5 | | | | | | |
| Student 6 | | | | | | |



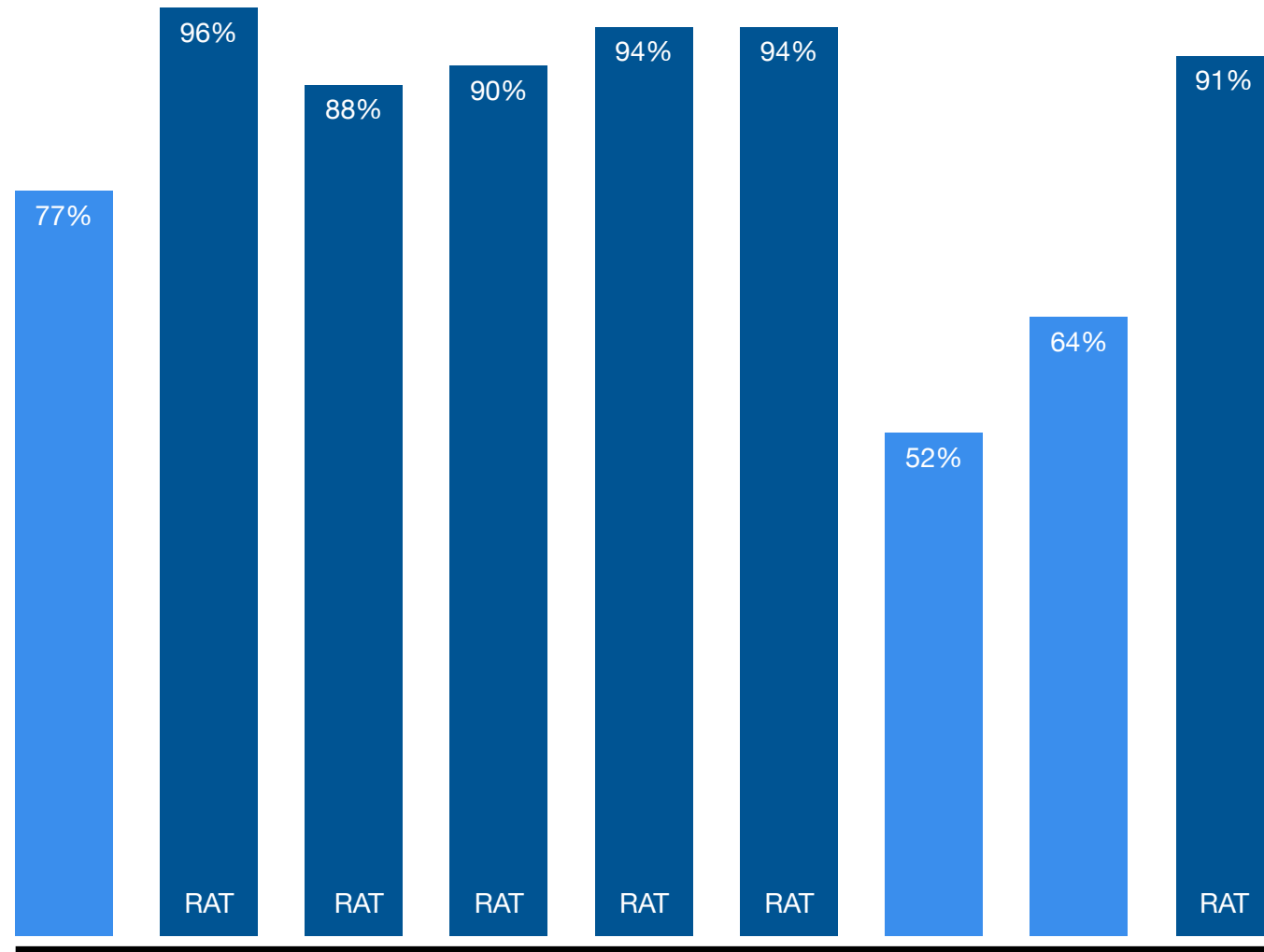
1 Global evaluation



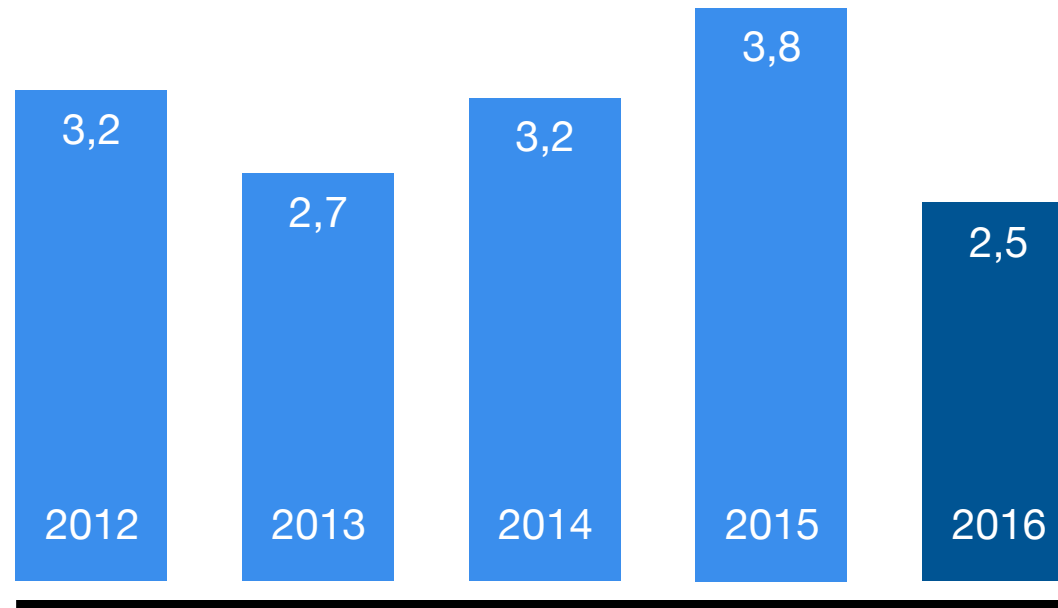
2 Difficulty



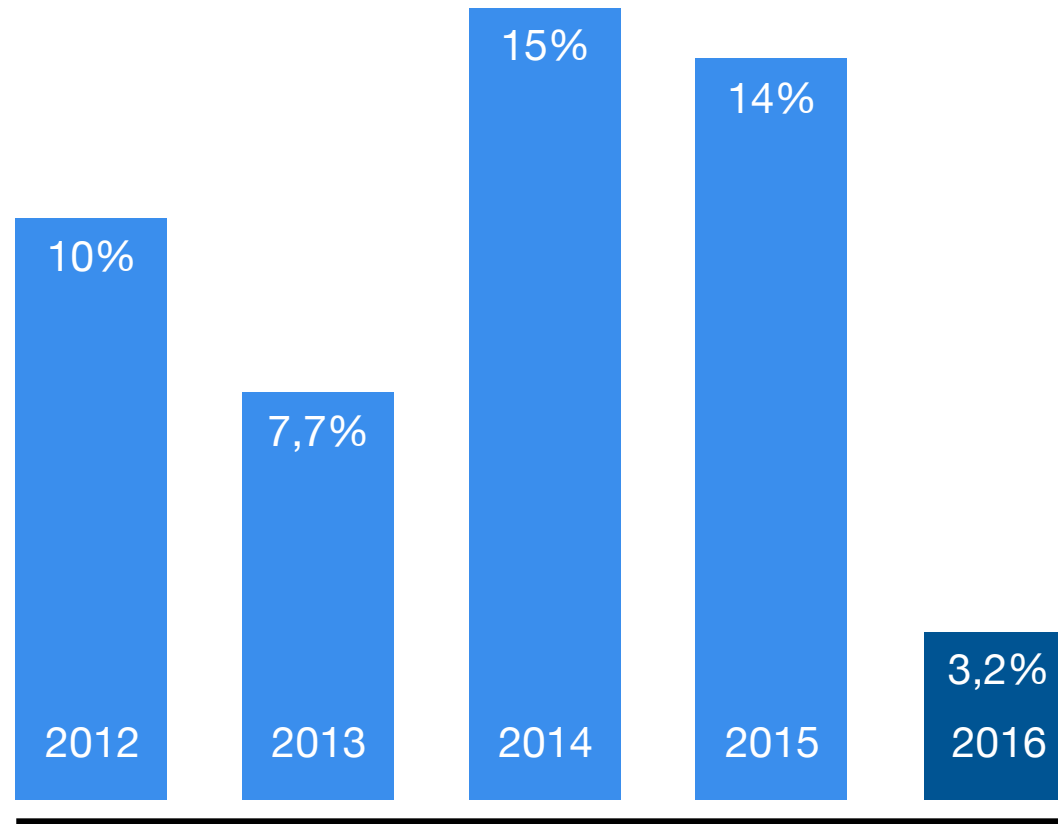
3 Workload



4 Lecture Attendance 2017

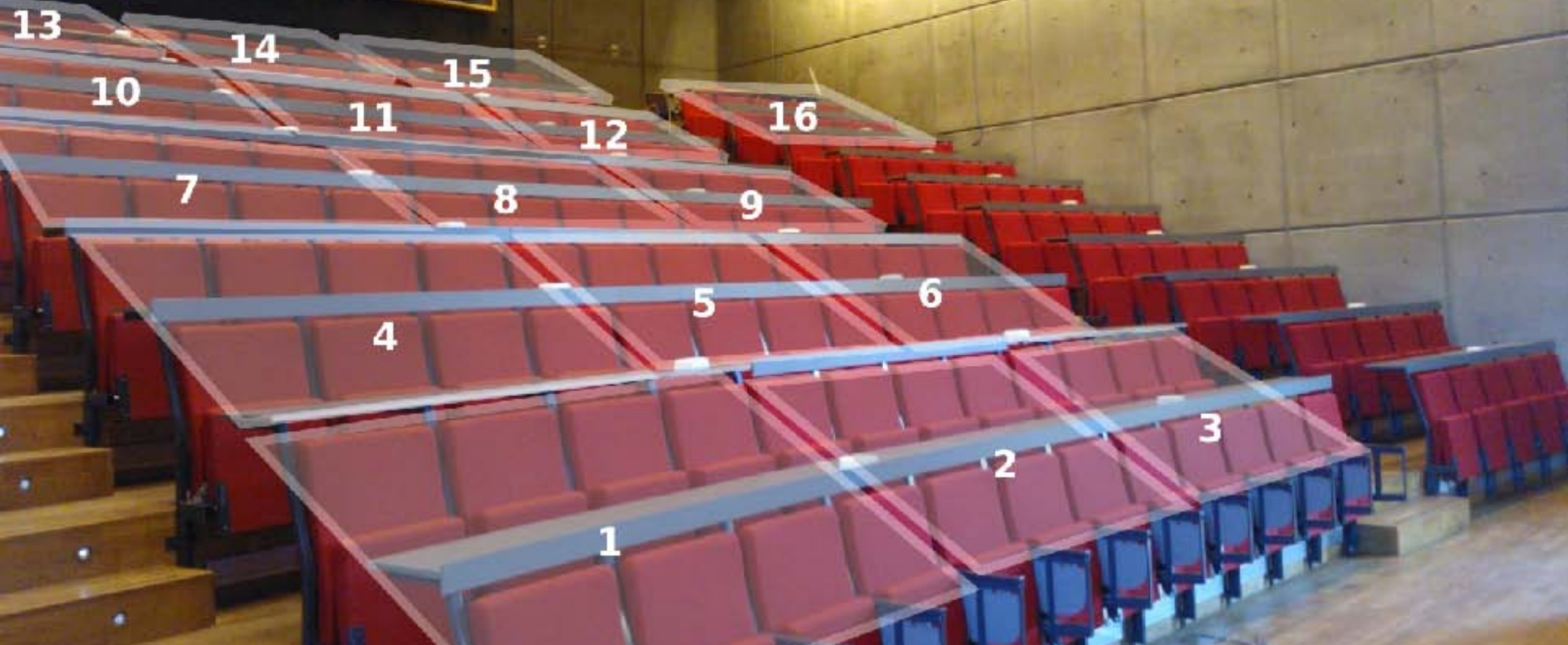


5 Average Grades



6 Student Dropout (fail or cancel)

GRUPPEPLASSERING VED TEAM-BASERT LÆRING













3

Studentenwerkstatt
Freizeit

6 STAGES
OF
DEBUGGING
1. That can't happen.
2. That doesn't happen on
my machine.
3. That shouldn't happen on
4. That shouldn't happen on
5. That shouldn't happen on
6. That shouldn't happen on





University of Minnesota

29 active learning classrooms





prosjekter



bøker



foredrag*



video



quiz



refleksjon

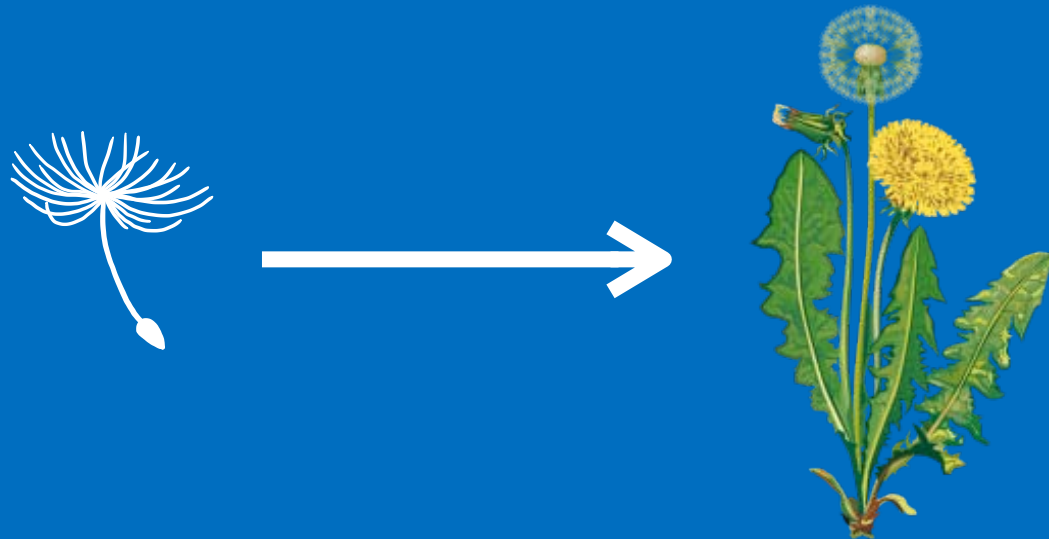


interaksjon



Team-Based
Learning

Og du?





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