

# EVENTOS

XIII JORNADAS CRAI:

APRENDIZAJE VIRTUAL, MOOCs Y CRAIs

2015



GETTING WIRED –LESSONS FROM A DECADE WITH THE E-LEARNING FIVE-STAGE MODEL  
IN DISTANCE LEARNING COURSES



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## Getting Wired – lessons from a decade with the e-learning five-stage model in distance learning courses.

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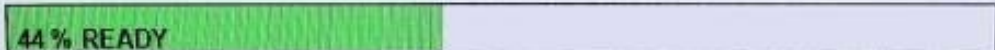


# The University of Copenhagen



## INSTALLING DANISH SUMMER

44 % READY

A horizontal progress bar with a green segment on the left and a white segment on the right. The green segment is labeled '44 % READY'.

Installation failed.

Error 404: Summer not found.

Summer is not available in your country.

Please try Spain

## Outline



1. Background
2. Learning through dialogs
3. Comparison of 'face-to-face' talk and online discussions
4. Starting with online courses
5. The five-stage model
6. How did we do it?
7. Did it work?
8. Further modifications

# Background



# Gunnar Thorson



# Faculty Library of Natural and Health Sciences



## The IT Learning Center (ITLC)

The knowledge and competence center for online and blended learning at the Faculty of SCIENCE. The aim of ITLC is to enhance students' learning by integrating the use of IT and media in the teaching through collaboration with the teachers.

We are

1 Head of unit

1 Project manager

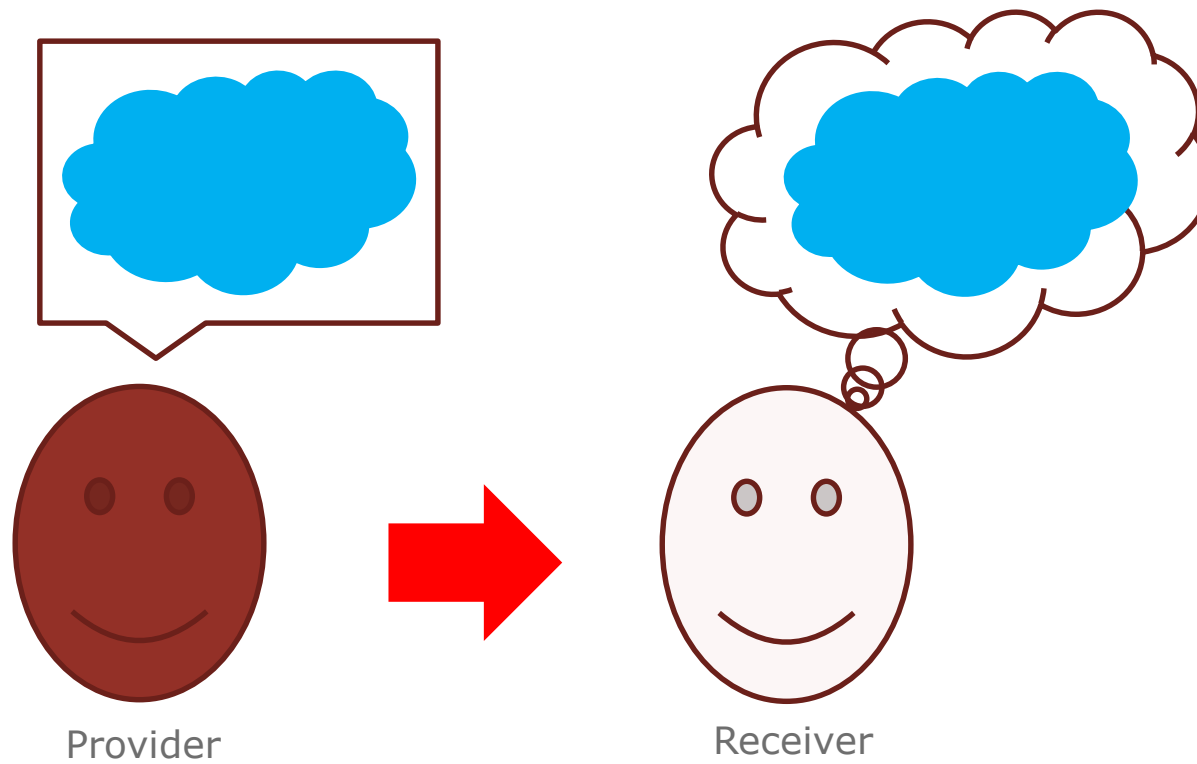
4 E-learning Consultants



# Learning through dialogs



# The transmission approach

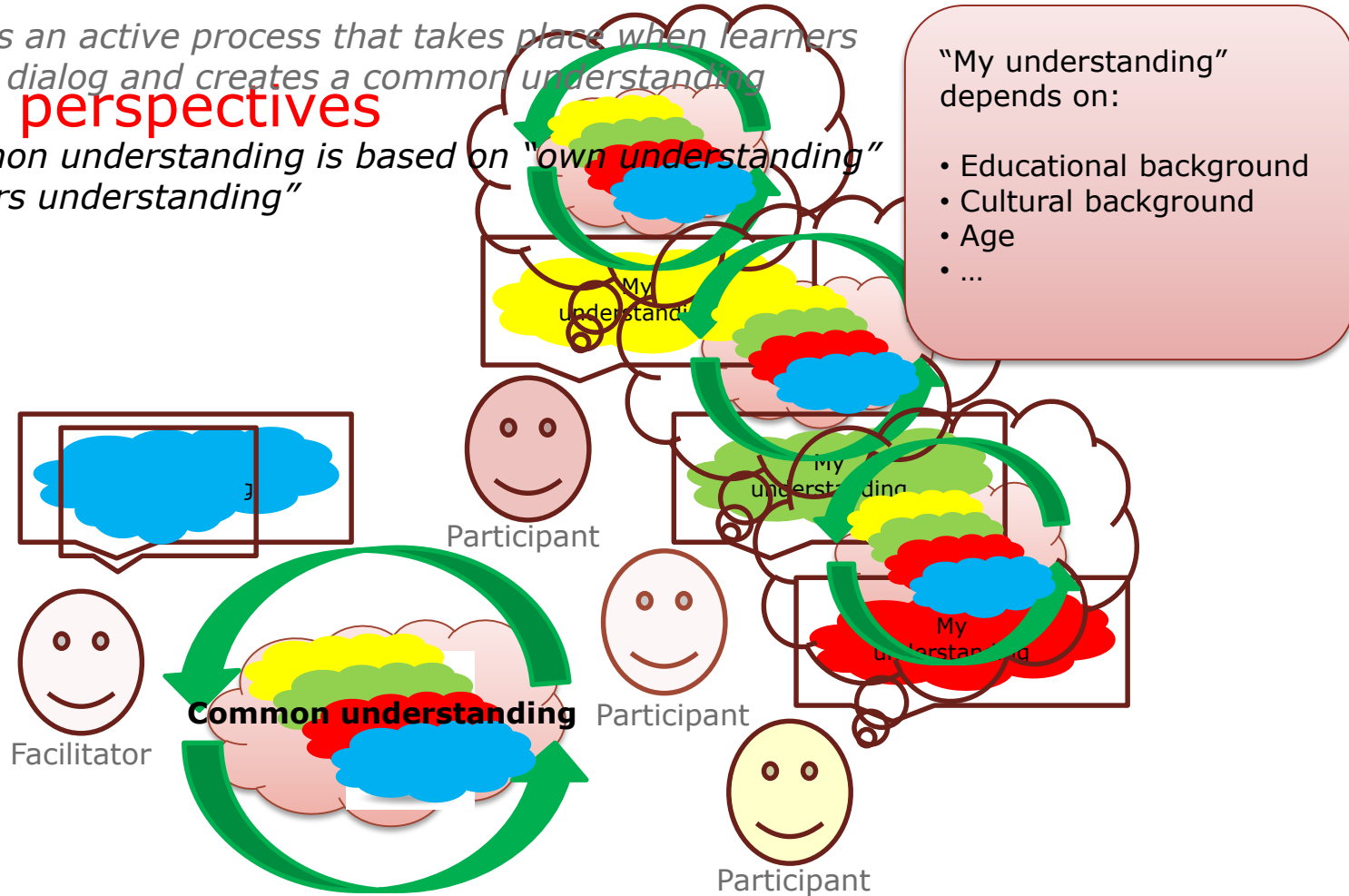


## The collaborative approach

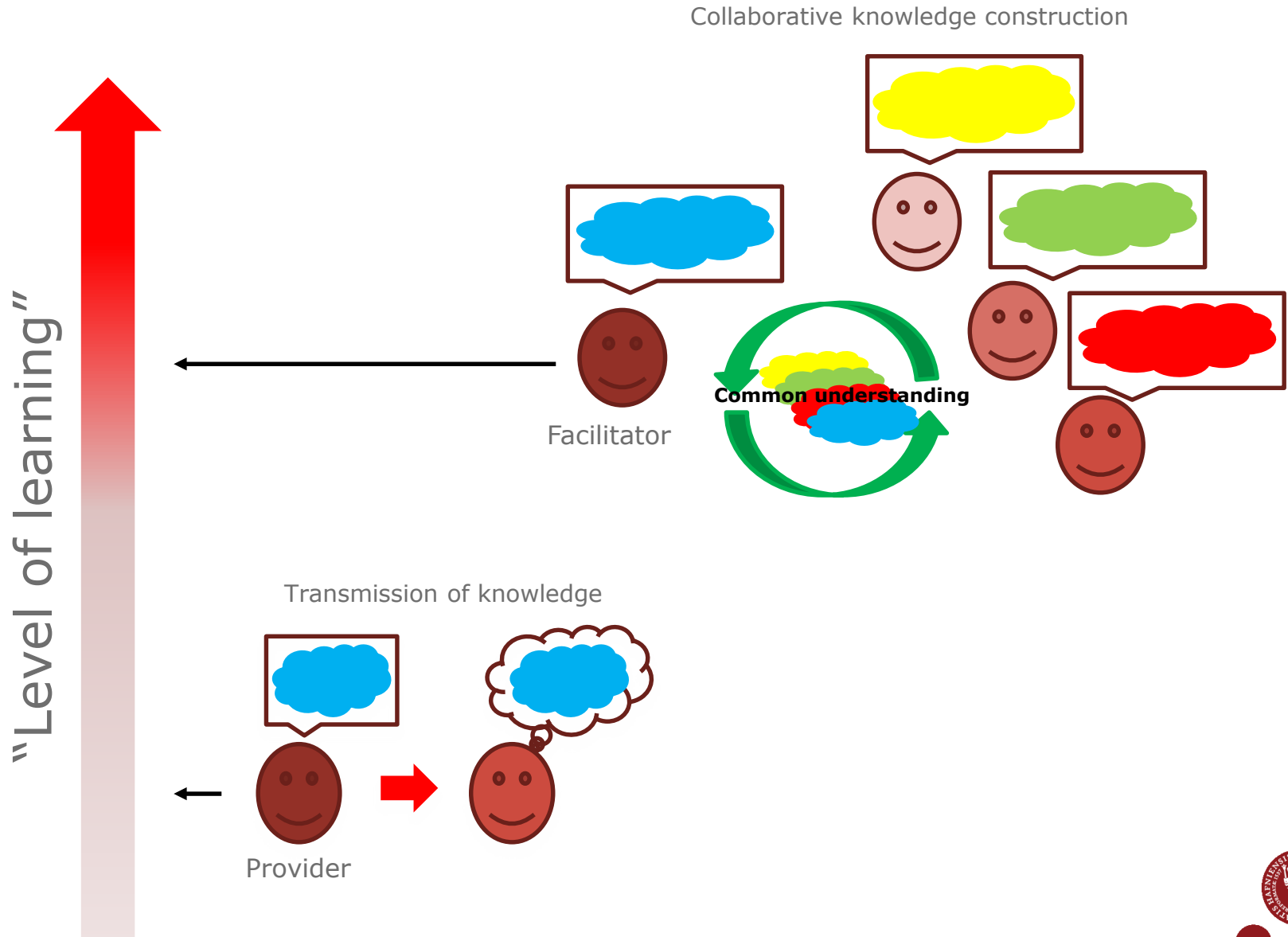
*Learning is an active process that takes place when learners engage in dialog and creates a common understanding*

**...More perspectives**

*The common understanding is based on "own understanding" and "others understanding"*



# Maximize learning



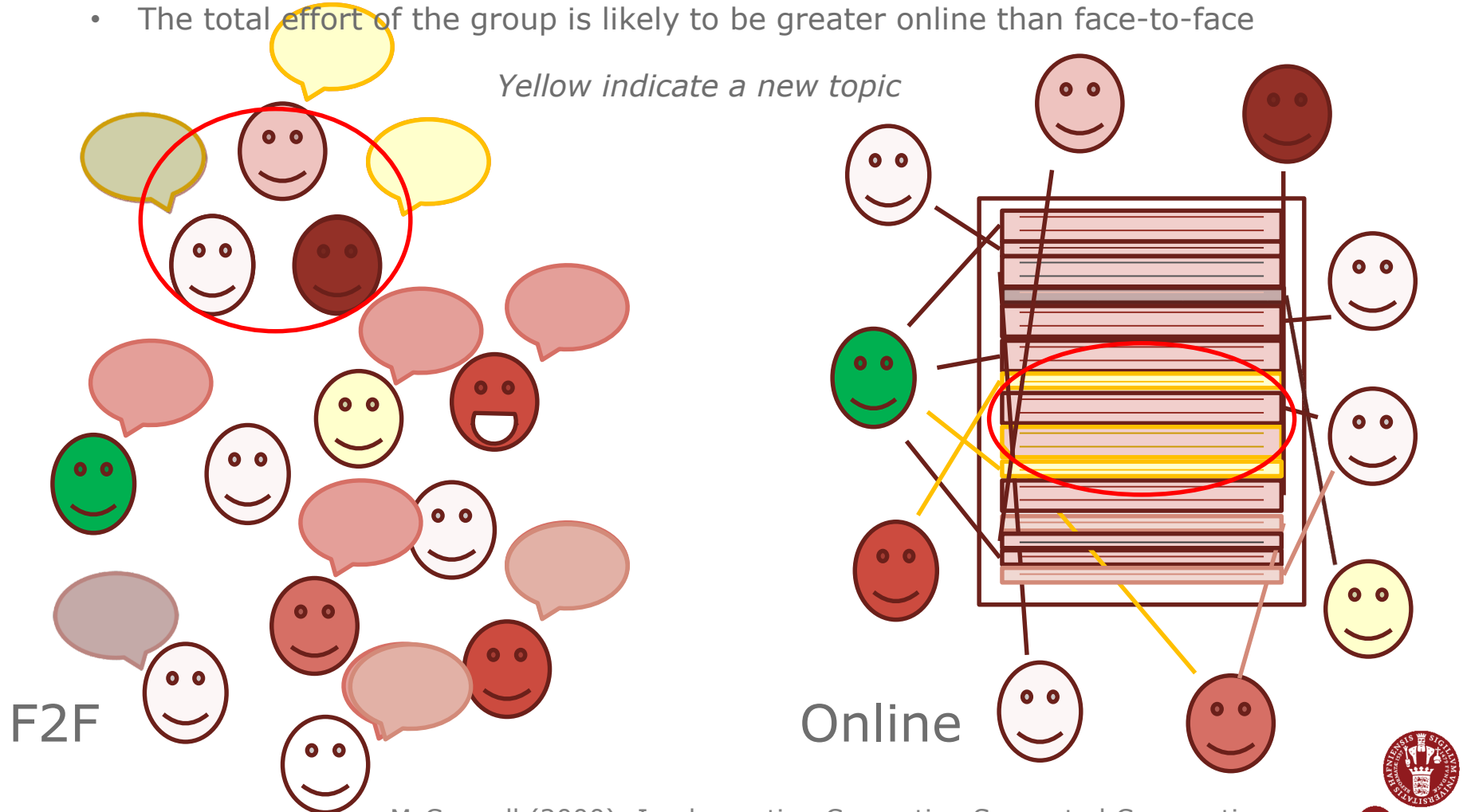
## The dialog in online learning

- Students benefit from dialog
- Discussion boards and chats are some of the online ways to facilitate dialog among students (and teachers).



## Differences between collaborating online and face-to-face

- People do not spend time in conversation and in planning as often in face-to-face ones
- usually working on one's reflection
- Differences in group dynamics, with difficulties for interpretation of
- Psychological stress of talking to a group or talking online is a participant's behaviour
- The total effort of the group is likely to be greater online than face-to-face



# Starting with online courses

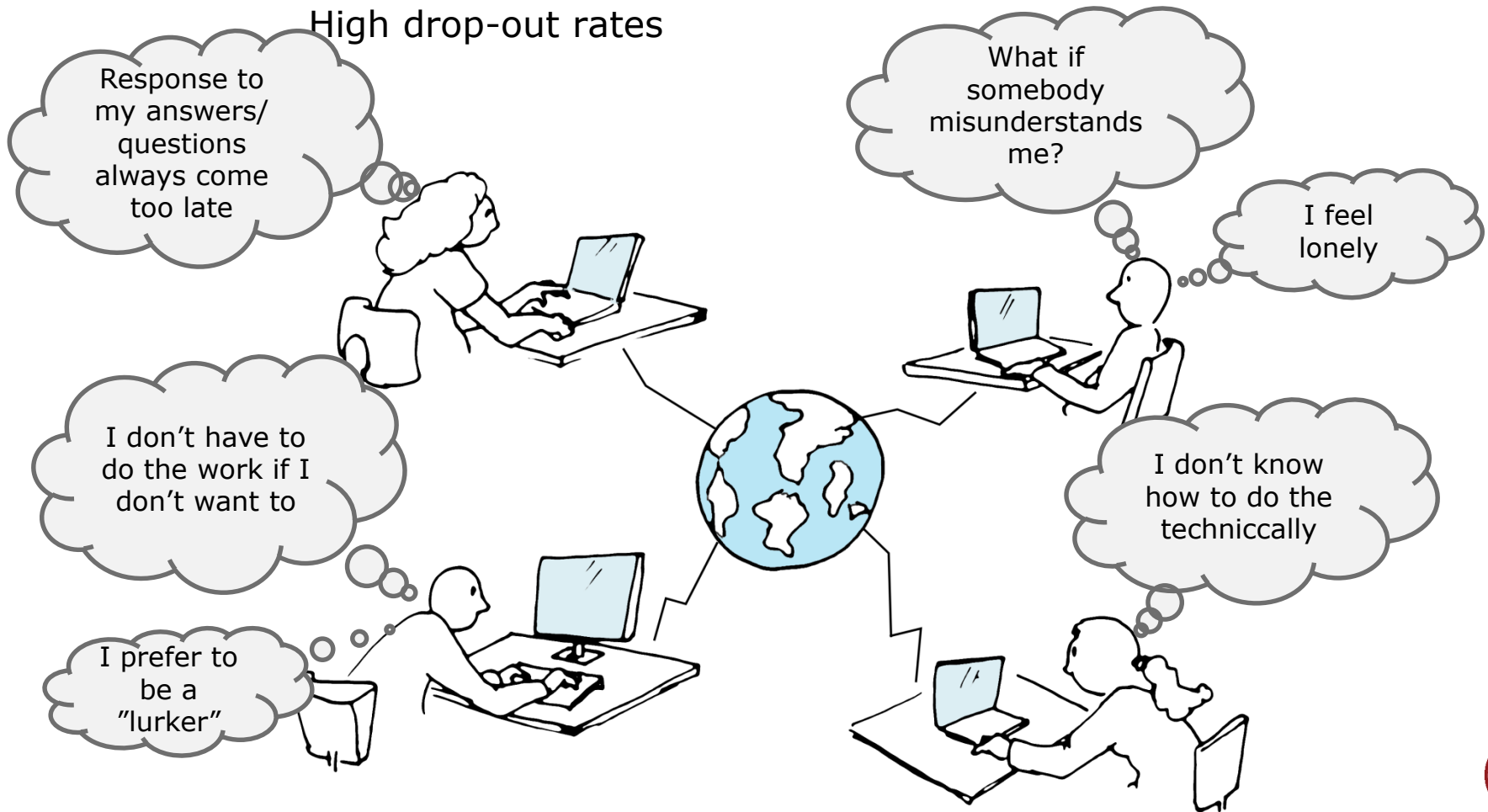


# Experiences from two online courses at the University of Copenhagen before 2005

Tried to make dialog-based online learning but...:

Low activity

High drop-out rates



## The teaching method

We needed to find a method that acknowledge and address:

- The technical barriers in online learning
- The barriers in online communication
- Promote online group-work



The Five Stage Model by prof. Gilly Salmon,

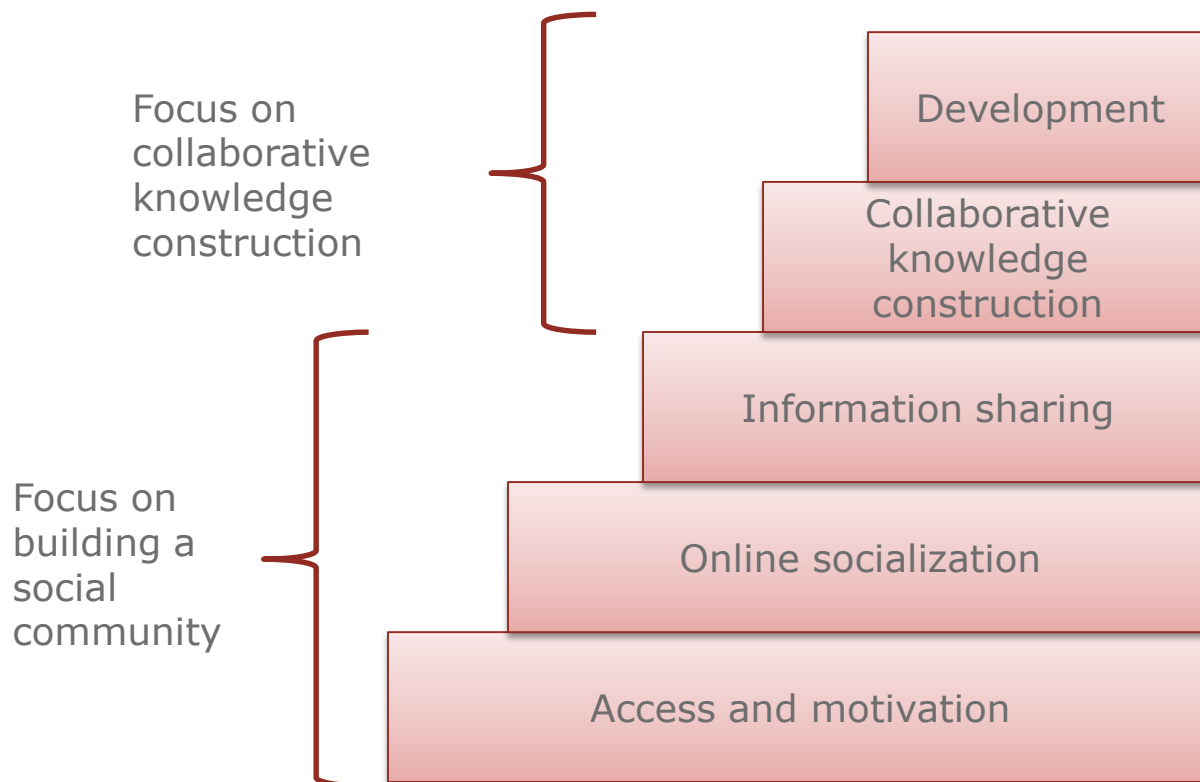
*... designed to promote online group-work and remove technical barriers*

# The Five-Stage model



## The Five-Stage Model\*

A stepwise learning method...



\*Salmon, G. (2000 & 2004) E-moderating: The key to teaching and learning online, London: Taylor and Francis ([www.e-moderating.com](http://www.e-moderating.com))



## Building blocks – The Five-Stage Model

Two building blocks:

- The specific defined role of the teacher/e-moderator
- The way the online exercises/e-tivities are designed



Will always contain:

- Explicit objective, spark, task and deadline

Primary tasks:

- Prepare exercises
- Facilitate the discussions/weaving
- Provide new angles
- Summarize

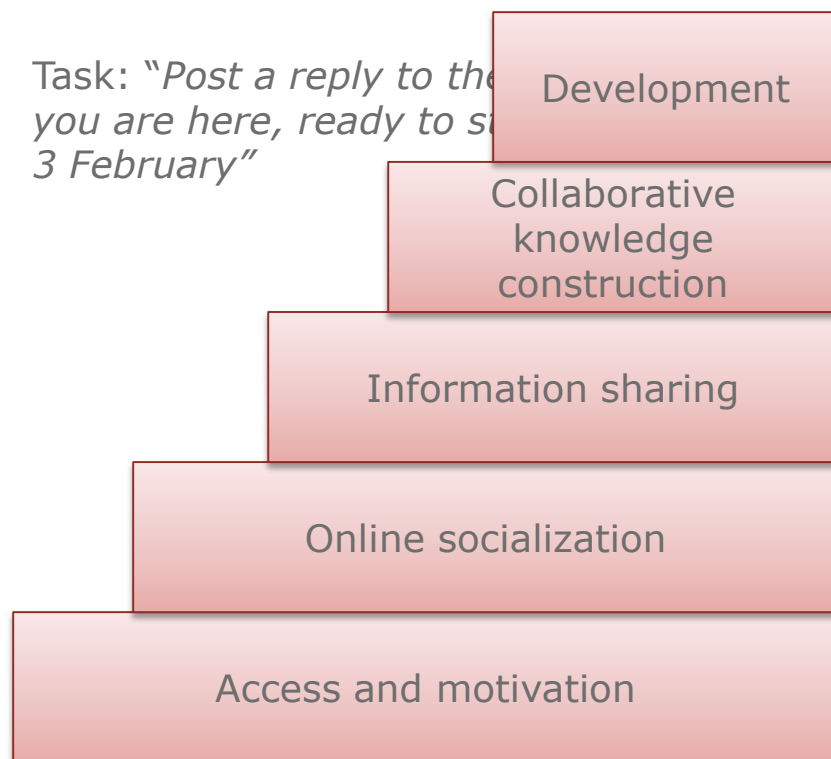


## The Five Stage Model – First stage

### Step 1 exercise – Access and motivation

Objective: *“The students access the LMS, find their course, and reply to a simple question”*

Task: *“Post a reply to the e-moderator to say you are here, ready to start your contribution before Tuesday 3 February”*



Teachers role – step 1:

*“Welcoming and encouraging”*



## The Five Stage Model – Second stage

### Step 2 exercise – Online socialization

Objective: *"That the students establish their online identities and start interacting with each other"*

Task: *Like you were on facebook create your profile:*

1. *Update your profile with a profile picture [here](#)*

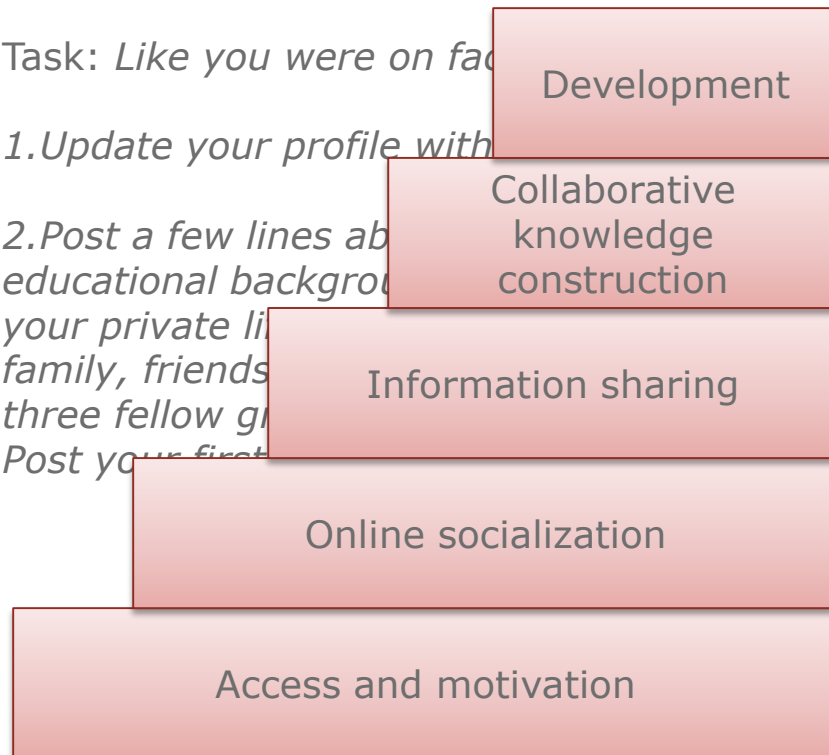
2. *Post a few lines about your nationality, where you live, your educational background or the course and something in*

*your private life. It can be a little about your family, friends, hobbies you like. Reply to at least three fellow group members and positive remarks.*

*Post your first message in the group.*

Teachers role – step 2:

*"Build bridges and familiarize"*



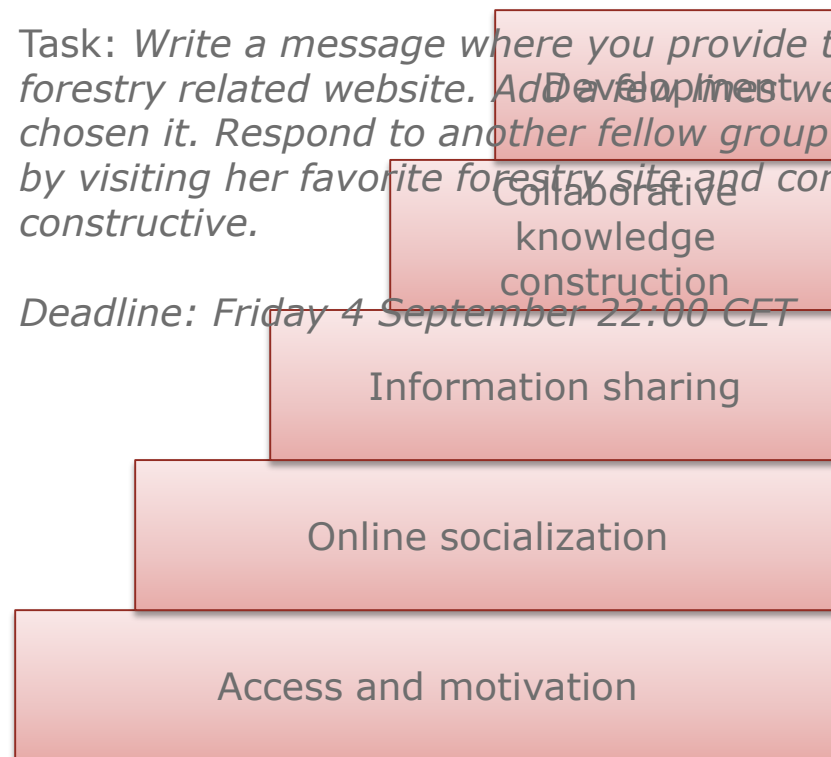
## The Five Stage Model – Third stage

### Step 3 exercise – Information exchange

Objective: *"That the students can find relevant information and that they starts to share information with each other"*

Task: *Write a message where you provide the internet address of your forestry related website. Add a headline where you explain why you have chosen it. Respond to another fellow group members post, for instance by visiting her favorite forestry site and commenting. Remember to be constructive.*

Deadline: *Friday 4 September 22:00 CET*



Teachers role – step 3:

*"Facilitate task and support"*



## The Five Stage Model – Fourth stage

Step 4 exercise – collaborative knowledge construction

Objective: *"To create knowledge together in the groups and to share intellectual resources amongst the participants"*

Task: Bruce (1999) links securing property under national law to the two concepts or main principles of "security" and "flexibility". Provide a brief explanation how these two legislative principles might be conflictive with each other. Then discuss how security or flexibility promote or constrain local autonomy as well as the right of individuals in relation to the management of local common pool resources. Each participant must post at least one message and replay to at least one message by another participant. **At the end of the discussion, a group member will summarize the discussion and post it in the "assembly hall".**

Deadline: Friday, 11 December at 20:00 CET

Access and motivation



## The Five Stage Model – Fifth stage

### Step 5 exercise – Development of new knowledge

Objective: *"Promotion of independent critical thinking and reflection"*

Task: *In small groups, describe what kind of decentralization (if any) is taking place in your country. Consider what you think decentralization outcomes should be, why this is so, and how it should be promoted. Motivate your differences between your country and other countries.*

Teachers role step 5: *Support the learning process/discussions*

Each group will post them in the "assembly" room

Deadline



## Sum-up on the Five Stage Model



- Stepwise learning model aiming at:
  - Get rid of technical barriers
  - Create a supporting and safe environment
  - Make the students participate actively in the education
  - Create knowledge in collaboration with each other
- Each step have a specific pedagogical goal and a defined role for the teacher to promote activity and collaborative learning
- The academic level of the exercises increases from step to step.

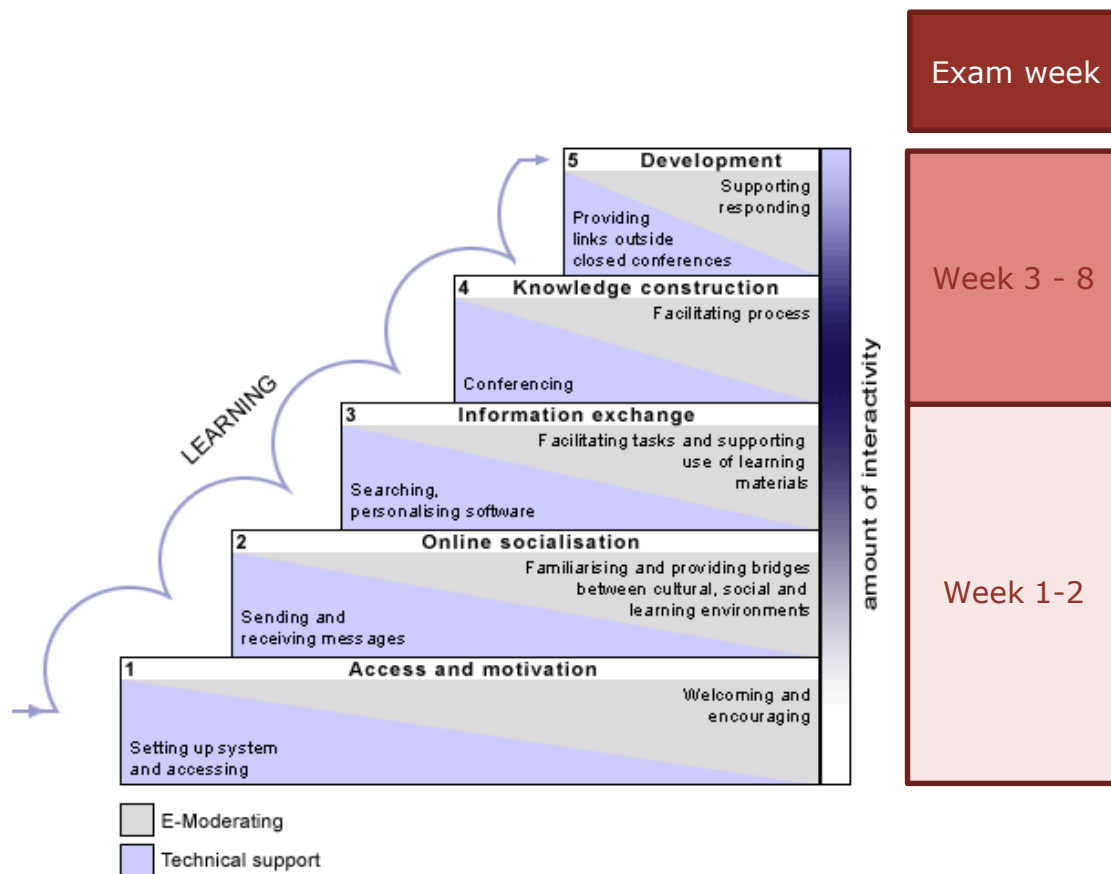


# How did we do it?



## The time schedule

One 7,5 ECTS point course last 9 weeks



## The workload

3 to 5 exercises in each module (each week)

Mix of exercises:

The image shows two overlapping screenshots from a learning management system. The top screenshot is a discussion forum post titled "Using compendium material on the Swaziland case (e-tivity 6.1)". It features a profile picture of Carsten Smith-Hall and text asking students to discuss how Husch (1987) and Myers & Lindsey will prepare and post a summary. The bottom screenshot is a multiple-choice quiz titled "2.1 The greenhouse effect". It contains several questions with checkboxes and radio buttons, such as "What is the albedo:", "What are the fundamental ways...", "How much energy hits one square meter...", and "Which are natural drivers of climate change?".

Discussion based  
exercises:  
Deals with  
theoretical  
"dilemmas and  
problems"

Multiple  
choice:  
Relate to  
facts and  
theory

# The course structure

## Fixed structure in modules and exercises:

**3.1 The route from green-house to ice-house**

Published 23 September 2009 by [Steffensen, Jørgen Peder](#)

Mandatory No

Deadline 22 June 2010 17:00

Assessment [Bestået/ei bestået \(Passed/Failed\)](#)

Number of used/permittet tries 0 / 2

Description

Hello and welcome to the first questionnaire in E-module 3. I am Jørgen Peder and in this E-lesson we are looking at how the climate has changed due to continental drift and geography. Good luck!

**Spark:** Climate has only one stable state: **Change!** The climate change, we should look in to past. Find the picture.

**Objective:** Obtain an overview on secular atmospheric, ...

**Task:** Answer the questionnaire using the learning resources below. Please note that some questions have several correct answers and that you have two permitted tries. (Tip: Before you start the actual test you may take questions with your fellow students in the [associated discussion forum](#). We are very welcome to discuss the ...

**Resources:** IPCC (2007): [Fourth Assessment report, Working Group I: The physical science basis](#), Chapter 6, Section 6.5 p. 459-463, FAQ 6.2 p 441.

**Start:** Friday 13 February 2009 at 17:00 CET

**Deadline:** Friday 20 February 2009 at 17:00 CET

**Climate since the dawn of civilisation**

In this second discussion of E-module 3 we are going to discuss the interaction of climate change and human civilisation. You may start to think about if some historical events may be put in a climate change context.

**Spark:** Take a look at [slide 14](#) in the Power Point presentation from the previous E-lesson).

As the Ice age ended ...

**Objective:** Develop the ability to discuss present climate change against past changes of the last 21,000 years.

**Task:** Study the learning resources below and consider the following questions in the [E-lesson 3.4 discussion forum](#) with your fellow group members:

1. Take a glance at Box 6.3 page 461 and Figure 6.9 page 462 from the [IPCC report](#) and compare them with the temperature curve from Greenland and Antarctica from the last 7.000 years ([slide 14](#) in the Power Point presentation from the previous E-lesson).
2. Give a number of reasons why the 20<sup>th</sup> century climate development is different from the rest of the Holocene?

Post your responses to the above and comment on posts from your fellow group members and respond to further questions from your teachers.

**Resources:** IPCC (2007): [Fourth Assessment report, Working Group I: The physical science basis](#), Chapter 6, Section 6.5 p. 459-463, FAQ 6.2 p 465.

**Start:** Friday 13 February 2009 at 17:00 CET

**Deadline:** Friday 20 February 2009 at 17:00 CET

**Welcome: Creates trust and motivation**

**Spark: Prompt associations**

**Objective: Creates overview of the learning outcome**

**Task: Eradicates confusion**

**Resources: Provides easy access and overview**

**Start & deadline: Encourage *time-management***

[Take test](#)

Sort by Date

Reply with quote

## An adaptation we made

It is mandatory to participate!

- Need to pass 75% of the modules (60 % of the exercises)
- A percentage of the final grade is based on the contributions

### Guiding principles:

1. Ability to use introduced terminology, concepts, models and theories
2. Ability to critically analyze and discuss issues and problems
3. Logical and coherent analysis and presentation of arguments
4. The scientific contents and quality of postings
5. Ability to correctly interpret literature
6. Contributions should be properly organized (systematic and well-structured)
7. Language should be clear and concise
8. Correct use of references
9. Time available



## Sum-up



- 9 week course structure: 7- 8 weeks of “scientific teaching”
- Mix of multiple-choice and discussion based exercises
- Fixed structure in the modules and exercises
- Mandatory to participate
- The students contributions are valued and graded



# Did it work?



## Did it work?

### High grades:

- The collaborative learning process -> more perspectives -> more knowledge
- Mandatory to participate -> high activity -> high level of reflection, throughout the course
- Written communication -> takes/needs more cognitive resources compared to oral communication -> more reflection

### High activity:

- A safe and committed community -> the students want to participate and feel obligated to participate
- The design of the exercise makes the students active (..respond to, .. discuss, ..answer, etc.)
- The teacher role: He/she are visible and encourage and motivate the students
- Fixed structures and careful explanations -> no confusion

### Low drop-out:

- Easy start -> removes barriers and resistance against e-learning
- Fixed deadlines every week -> the students have to work constantly - no time for drop-out 😊
- All students are “visible” and can be contacted and helped by the teachers
- The community feeling provides the students with some kind of identity -> they want to be a part of the group and the course



# Further modifications



# Plagiarism and late starters



Blunier,  
Thomas

+ Svar med citat ✎ Rediger ✕ Slet

Hi, welcome to the first discussion in my E-module. Now I am looking forward to discuss features of abrupt climate change with you.

**Spark:** Take a quick look at these two videos: "[The day after tomorrow](#)" and "[Golden spike in icecore](#)"

**Objective:** Develop the ability to discuss features of abrupt climate change.

**Task:** Study the learning resources below and take a look at the temperature curves for Greenland and Antarctica from the period between 10.000-90.000 years ago (go to [slide 14](#) in the Power Point presentation). Go to the *E-lesson 3.2 discussion forum* and make a comparison of the curves for Greenland and Antarctica together with your fellow group members.

**You should post your own thoughts, comment on posts from your fellow group members and reply to further questions from your teacher.**

**Important Reminder:** Plagiarism is not tolerated, and will result in failing the course and may even lead to expulsion from the university. Please remember not to simply copy and paste information, instead write in your own words. When using sources to backup your opinions in the discussions, remember to cite the sources and use quotations when necessary.

**Suggested resources:** IPCC (2007): [Fourth Assessment report, Working Group I: The physical science basis](#), Chapter 6, Section 6.4.2 p 454 - 457, FAQ 6.1 p 449-451.

Blunier, T. (2013): [Abrupt climate change](#) (Power Point) ([PDF copy](#))

For the interested in ice core science, read W. Dansgaard's book "Frozen Annals" which can be [downloaded for free](#). You may also watch this [video](#) recorded at NGRIP Greenland 1999.

**Start:** Friday 15 February 2013 at 17:00 CET

**Deadline:** Friday 22 February 2013 at 17:00 CET

**Please note that your first contribution to the E-lesson 3.2 discussion must be posted by Tuesday 19 February 2013.**

# Additional questions and teachers guide



Blunier,  
Thomas

+ Svar med citat ✎ Rediger ✕ Slet

Hi, welcome to the first discussion in my E-module. Now I am looking forward to discuss features of abrupt climate change with you.

**Spark:** Take a quick look at these two videos: "[The day after tomorrow](#)" and "[Golden spike in icecore](#)"

**Objective:** Develop the ability to discuss features of abrupt climate change.

**Task:** Study the learning resources below and take a look at the temperature curves for Greenland and Antarctica from the period between 10.000-90.000 years ago (go to [slide 14](#) in the Power Point presentation). Go to the *E-lesson 3.2 discussion forum* and make a comparison of the curves for Greenland and Antarctica together with your fellow group members.

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## Additional questions:

- 1) Now, I would like you to take a look at the temperature curves from Greenland and Antarctica for the last 5000 years (go to [slide 16](#) in the Power Point presentation) and make a comparison of these curves.
- 2) In the movie "[The Day after Tomorrow](#)" the storyline is that an ice age can be started within six weeks. How likely is such a scenario?

**E-sibling guide and learning outcome checklist:** In this discussion I expect the students to discuss sudden climate changes, and that these changes originate from an unstable climate system and that the processes involved are yet again different from the mechanisms discussed in E-lessons 2.1. and 2.2 because the time scales involved are different. They should discuss how abrupt changes can come about. My point here is to make the students realise that abrupt climate change, unlike ice ages and interglacials, does not cool down or heat up the whole Earth, it is rather a re-distribution of heat between the poles. The average temperature was not so affected. This

## Online community

- Large online courses – up to 90 students
- Divided into groups of max. 15 (recommended 8-12)
- 1 student assistant pr. group
- Running 5 month
- First two steps in two days: Internat and desktop video conference

### Community:

E-godfather

E-professors

E-mom/E-dad

E-siblings/sisters/brothers

E-sisters/brothers

E-wizard

course responsible

the teachers

daily coordinators

student assistants

the students

problem solver



# Variation

Each group will get a separate statement to initialise the discussion (link to statements [here](#))

At the end of this discussion each group must reach a consensus as to the three main advantages and disadvantages of consuming fermented milk products

Each group must fill out a powerpoint template ([here](#)) with their conclusion and upload it to Absalon in the folder for discussion.

## Learning objectives

- Describe and classify fermented dairy products
- Summarise the unit operations needed to process and manufacture fermented dairy products
- Characterise the quality of fermented dairy products
- Discuss the role of fermented dairy product in relation to diet and health issues

## Task

1) Study the suggested learning resources and explore the benefits that can be obtained from fermentation of milk.

**Start by discussing the benefits of fermented milk suggested by the statement specific for each group.**

2) Reply to this message and post your contributions

3) Please respond to at least two contributions from your fellow group members. Post early in the week to kick start the discussion and log on multiple times to follow and develop the discussion.

## Learning resources

Spoken PowerPoint by Richard Ipsen, "[Fermented Milk Presentation 1: Introduction and starter cultures](#)" and "[Fermented Milks Presentation 2: Processing and technology](#)"

3. Walstra, P., Wouters, J.T.M. & Geurts, T.J. [Fermented Milks](#). Dairy Science and Technology, Second Edition. 2006. Chapter 22: pages 551-573.

**Responsible for starting the discussion by Monday latest 16.00 CET: Ione**

**Responsible for summing up the discussion by Friday latest 14.00 CET: All (in the PowerPoint template)**

**Start:** Friday 26th September 2014 at 16.00 CET

**Deadline:** Friday 2nd October 2014 at 12.00 CET



# More roles

## Applied Statistics for Researchers and Developers



### Task 1 (forerunners)

Actually, the tale of the greedy king only has the chessboard-like row-column arrangement in common with the present experiment. But how does the design of the experiment actually look, and how can it be described?

Check out the [data for the experiment](#), which was laid out in rows and columns, like the chessboard, but bigger, with individual plants in each square.

**First**, you have to find out the structure of the design. For that purpose you need to:

- specify which factors are present
- specify the levels for each factor
- tabulate the number of plants for each factor level
- find out if pairs of factors are nested or crossed respective to each other
- do the same for sets of three, four, ... factors, if relevant
- specify the total number of experimental units
- summarize the design the best way you can.

**Everybody:** post comments and participate in the [discussion in the discussion forum](#).

## Activity 4.1: Barley plants nicely arranged

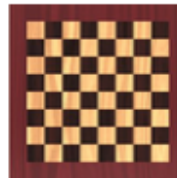
### Playing chess with barley

#### Objectives:

- to get familiar with the terminology of experimental design: factor, levels, experimental unit, crossed/nested factors, response variable, etc.
- to learn how to inspect a dataset to get an overview of the experimental design
- to get working knowledge of analysis of factorial designs with only main effect.

#### Case description: A tale of seeds arranged on a chess board

You may know the tale about the greedy King being tricked by a poor peasant to give a small donation to the starving peasants, namely 1 seed on the first square of a chess board, 2 seeds on the second, 4 on the third, and then filling the chessboard by doubling square for square until the 64th square.



The greedy King did not fear this minor (as he thought) donation, but how many seeds would he have to give?

In an experiment with **barley**, the objective was to see if a low protein content of the plant was inheritable as a property mainly governed by a single gene. Two parent lines (1: Dina, 15: Nordal) were crossed and produced a number of offspring lines, the ID-numbers of which are given as the variable "line" in the [dataset](#). The plants in the experiment represent the two parent lines and a

## Sum-up



- Be aware of plagiarism and make rules
- Build an online community to decrease drop-out
- Make variation in the outcome of the group work
- At level 4-5 activate the students take more responsibility for the discussion



# Questions?





Thank you

Henrik Kaas

Mail: [hka@science.ku.dk](mailto:hka@science.ku.dk)

IT Learning Center

The Faculty Library of Natural and  
Health Sciences

University of Copenhagen

<http://itlc.science.ku.dk/english>