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

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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
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

Provider

Receiver
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".

"My understanding" depends on:
- Educational background
- Cultural background
- Age
- ...
Maximize learning

"Level of learning"

Collaborative knowledge construction

Common understanding

Facilitator

Transmission of knowledge

Provider
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

- **Permanence of online discussions and impermanence of face-to-face ones**
- **Differences in group dynamics**, with difficulties for interpretation of non-verbal cues
- **Online discussions may have several simultaneous foci**, whereas face-to-face ones usually work on one issue at a time
- **Differences in level of moderator control and impact over participants' behaviour**
- **People can't hide online**
- **Differences in levels of anxiety**
- **Psychological stress of joining a group is much higher online than face-to-face**
- **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

Response to my answers/questions always come too late

I don’t have to do the work if I don’t want to

I prefer to be a "lurker"

What if somebody misunderstands me?

I don’t know how to do the technically

I feel lonely

XIII CRAI Conference - June 11th
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...

Focus on building a social community

Focus on collaborative knowledge construction

Development

Collaborative knowledge construction

Information sharing

Online socialization

Access and motivation

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

Primary tasks:
- Prepare exercises
- Facilitate the discussions/weaving
- Provide new angels
- Summarize

Will always contain:
- Explicit objective, spark, task and deadline
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 welcome message from your e-moderator to say you are here, ready to start e-learning. Post 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, start to create your profile:

1. Update your profile with a valid e-mail and a profile picture here
2. Post a few lines about who you are, your nationality, where you live, your educational background, your expectations for the course and something in your private life that you feel like sharing. It can be a little about your family, friends, hobbies, travels or whatever you like. Reply to at least three fellow group members with acknowledgements and positive remarks. Post your first contribution Tuesday 3 February.

Teacher’s 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 few lines were 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
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, and what outcomes this has produced. Consider what you think could be done in order to improve decentralization outcomes, or in case no decentralization is taking place, why this is so and whether decentralization should or should not be promoted. Motivate your opinion and try to identify similarities and differences between the countries represented in your group.

Each group will summarize their findings and post them in the “assembly” room.

Deadline: January 16 at 20:00 CET
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:

**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:

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

Hello and welcome to the first questionnaire in E-module 3 from Jørgen Pedersen. In this 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 is changing, we should look in past. First let us clarify this with a short quiz.

Objective: Obtain an overview on secular atmospheric, oceanic and ice sheet change.

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. If you want to skip the actual test you may take a look at the narrative version of the associated discussion forum.

Resources: IPCC (2007): *Fourth Assessment report. Working Group I: The climate of the last 60 million years. Climate since the dawn of life for civilization, Figure 6.1 p 441.*

Start: Friday 13 February 2009
Deadline: Friday 20 February 2009 at 17:00 CET
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
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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**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. Dansgaards 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

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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

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.

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: course responsible
E-professors: the teachers
E-mom/E-dad: daily coordinators
E-siblings/sisters/brothers: student assistants
E-sisters/brothers: the students
E-wizard: 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”


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 thePowerPoint template)

Start: Friday 26th September 2014 at 16.00 CET
Deadline: Friday 2nd October 2014 at 12.00 CET

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More roles

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 chess board 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

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:

a) specify which factors are present
b) specify the levels for each factor
c) tabulate the number of plants for each factor level
d) find out if pairs of factors are nested or crossed respective to each other

e) do the same for sets of three, four, ... factors, if relevant
f) specify the total number of experimental units
g) summarize the design the best way you can.

Everybody: post comments and participate in the discussion in the discussion forum.

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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 to take more responsibility for the discussion
Questions?
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IT Learning Center
The Faculty Library of Natural and Health Sciences
University of Copenhagen
http://itlc.science.ku.dk/english