Massive Kurse und andere Mythen

Jörn Loviscach

FH Bielefeld
University of
Applied Sciences

- **Die MOOCs-Industrie**
- **Fiktionen versus Fakten**
- **Taylorisierung und Entbündelung**
- **Illusionen des Lehrens und Lernens**
- **„Digitalisierung“ an der FH**

- Die MOOCs-Industrie
- Fiktionen versus Fakten
- Taylorisierung und Entbündelung
- Illusionen des Lehrens und Lernens
- „Digitalisierung“ an der FH

Massive

Online

MOOC

"Open"

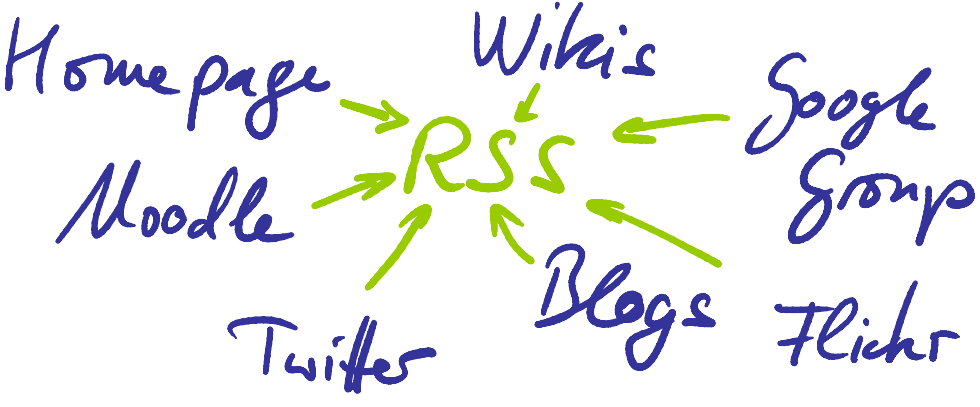
Course

Das erste cMOOC

- Connectivism and Connected Knowledge, 2008

  Stephen Downes, George Siemens
  University of Manitoba

- 2200 Teilnehmer



Das erste xMOOC

- Intro to A.I., 2011

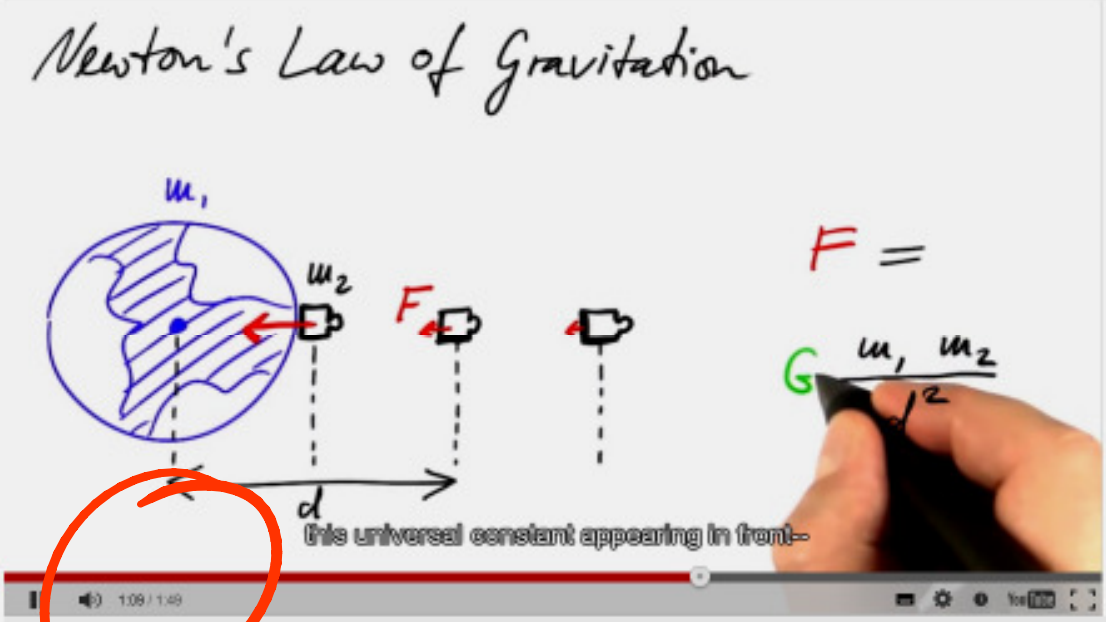
  Sebastian Thrun, Peter Norvig
  Stanford University

- 160.000 Teilnehmer, 23.000 Zertifikate

https://www.ai-class.com

Differential Equations in Action

Unit 1 - Houston We Have a Problem



Newtonian Gravity

Discussions

See All

No discussions for this unit. See all discussions for this course.

Ask a Question

Instructor Notes

No additional notes for this section

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Differential Equations in Action

Unit 1 - Houston We Have a Problem

Ratio of gravitational forces

●	:	●	
1	:	1	0
2	:	1	0
1	:	2	0
4	:	1	0
1	:	4	0

Force Ratio

Rewatch Instructions

Submit Quiz

Discussions

See All

Unit1-21: Force Ratio, Force from the shell and Force from the core ? Nov 10

Shell Theorem and water flow analogy Nov 10

Ask a Question

Instructor Notes

No additional notes for this section

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Differential Equations in Action

Problem Set 1

```
# PROBLEM 2
#
# Modify the trajectory function below to
# plot the trajectory of several particles.
# Each trajectory starts at the point (0,0)
# given initial speed in the direction
# specified by the angle. Use the Forward
# Euler Method to accomplish this.

import math
from udacityplots import *

h = 0.1 # s
g = 9.81 # m / s2
acceleration = numpy.array([0., -g])
initial_speed = 20. # m / s

@show_plot
def trajectory():
    angles = numpy.linspace(20., 70., 6)

    num_steps = 30
    x = numpy.zeros([num_steps + 1, 2])
    v = numpy.zeros([num_steps + 1, 2])

    for angle in angles:
        ###Your code here.

        matplotlib.pyplot.plot(x[:, 0], x[:, 1])
    matplotlib.pyplot.axis("equal")
    axes = matplotlib.pyplot.gca()
    axes.set_xlabel("Horizontal position in m")
    axes.set_ylabel("Vertical position in m")
    return x, v
```

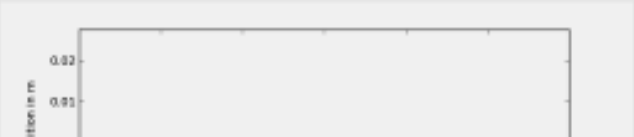
Ballistic Trajectories

Rewatch Instructions

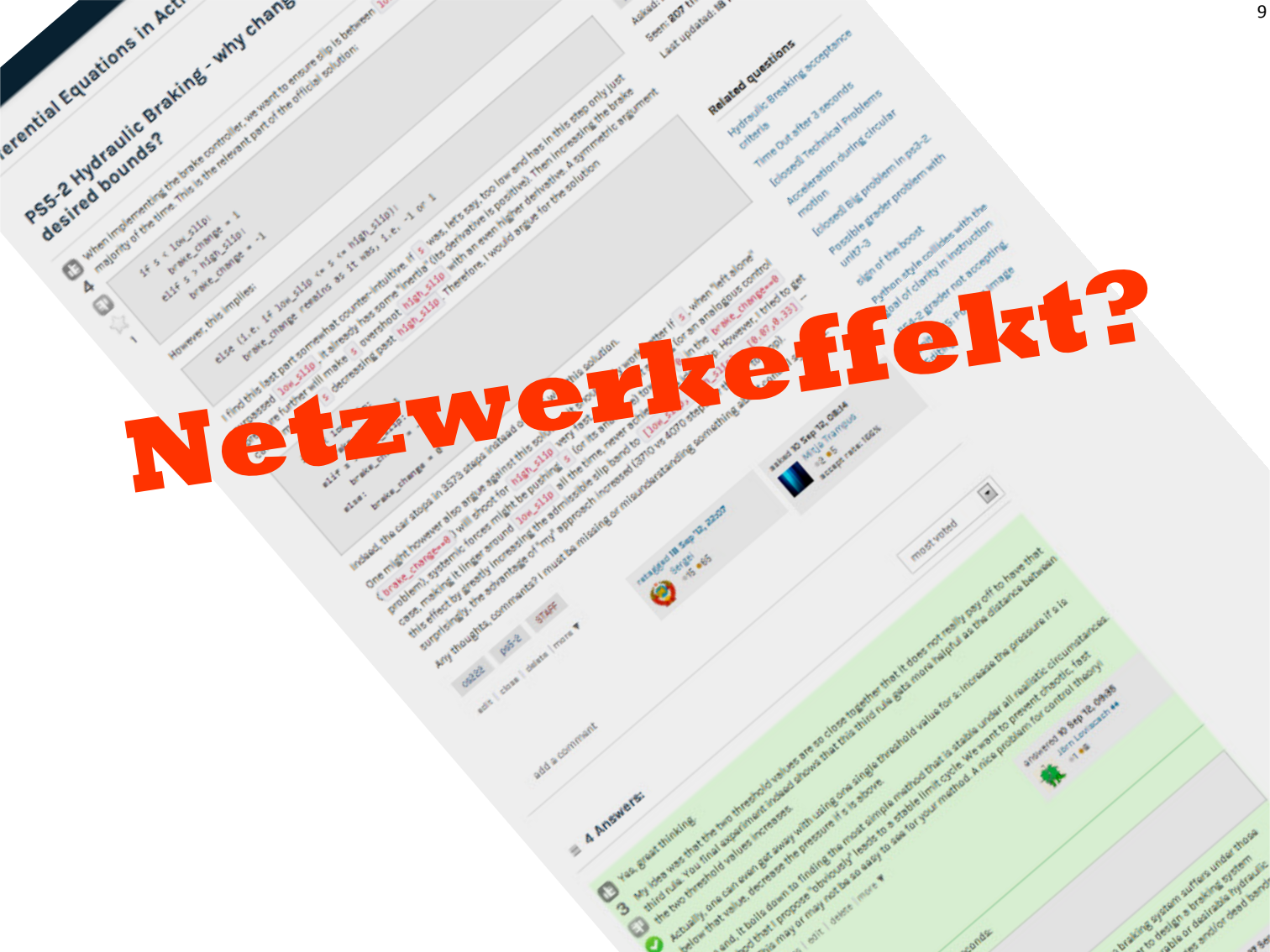
Submit

Reset

Test Run



Netzwerkeffekt?



http://cacm.acm.org/blogs/blog-cacm/153706-john-l-hennessy-on-the-coming
http://blog.coursera.org/post/55080731561/coursera-secures-43m

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Plattner
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University
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NovoED
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aprendo
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OPEN
2 STUDY

CLASS CENTRAL

Courses Providers

- Recently started or starting soon (58)
- Just Announced (89)
- Courses in Progress (256)
- Future courses (415)
- Self Paced (45)
- Finished courses (837)

Finished courses -

Future courses (415)

INTRO	COURSE NAME	INSTRUCTOR(S)	SUBJECT	START DATE
You Tube	中医药与中华传统文化 Traditional Chinese Medicine and Chinese Culture *Shanghai Jiao Tong University*	彭 崇胜	Health & Medicine	1st Dec, 2013
You Tube	数学之旅 The Journey of Mathematics *Shanghai Jiao Tong University*	王 维克	Mathematics and Statistics	1st Dec, 2013
You Tube	Creative, Serious and Playful Science of Android Apps *University of Illinois at Urbana-Champaign*	Lawrence Angrave	Computer Science	2nd D 2013
	ing your image: dental	Mike Sharland	Health & Medicine	2n 20

http://www.class-central.com/

- Die MOOCs-Industrie
- **Fiktionen versus Fakten**
- Taylorisierung und Entbündelung
- Illusionen des Lehrens und Lernens
- „Digitalisierung“ an der FH

„Bildungsrevolution“?

- NBC „Continental Classroom“, CBS „Sunrise Semester“, 1958
- Keller-Plan (PSI), 1968
- Fathom (Columbia u.a.), 2000–2003 AllLearn (Oxford, Yale, Stanford), 2001–2006

„Demokratisierung“?

Coursera Blog

8th Grade Twins take Astrobiology and Einstein Courses

Editor's note: Muhammad and Khadija Niazi are twins living in Pakistan. They are turning 13 this year each completed over 6 courses already. They, along with their mom, will be guest blogging to share thei on MOOCs for young students and families in the coming months. We're excited to have them share th with the community!

COURSERA COMMUNITY!

fraternal twins (Muhammad, the brother
13 years old, and have j
with our fam

http://blog.coursera.org/post/54132976778/8th-grade-twins-take-astrobiology

„Demokratisierung“?

I'm [redacted] From Tehran, Iran. Live in Kuala Lumpur,Malaysia.

18 years old and this year finished my high school.

I'm [redacted] from Jamaica, West Indies. I am a science educator specializing in biol
me and I'm super excited about the course.

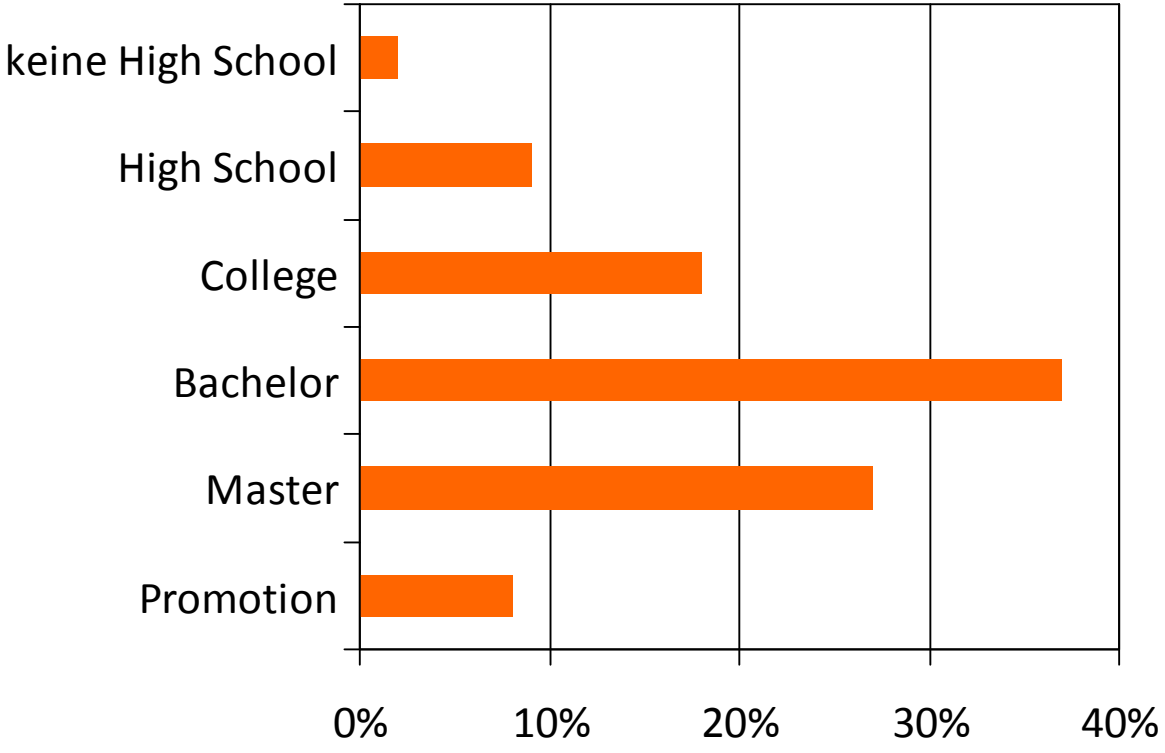
I live in the Houston, Texas area. I was laid off from the Johnson Space Center awhile back.

My job included support for the Space Shuttle, the International Space Station, the Hubble
been in the current Mission Control Center (MCC), as well as visited the historical Mission
missions.

I'm [redacted] I live in Colorado, originally from Moscow, Russia. I was a military officer then
to get structural knowledge about solving differential equations. I'm grateful to Jörn, Miria
to learn great stuff.

http://forums.udacity.com/questions/15000024/where-is-everybody-from#cs222

Duke University: Biolelectricity



Daten: http://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/6216/Duke_Bioelectricity_MOOC_Fall2012.pdf

University of Pennsylvania

The main users, especially in BRICS and developing countries tend to be young, well-educated males who are trying to advance in their jobs. [...T]he individuals the MOOC revolution is supposed to help the most [...] are conspicuously underrepresented [...].

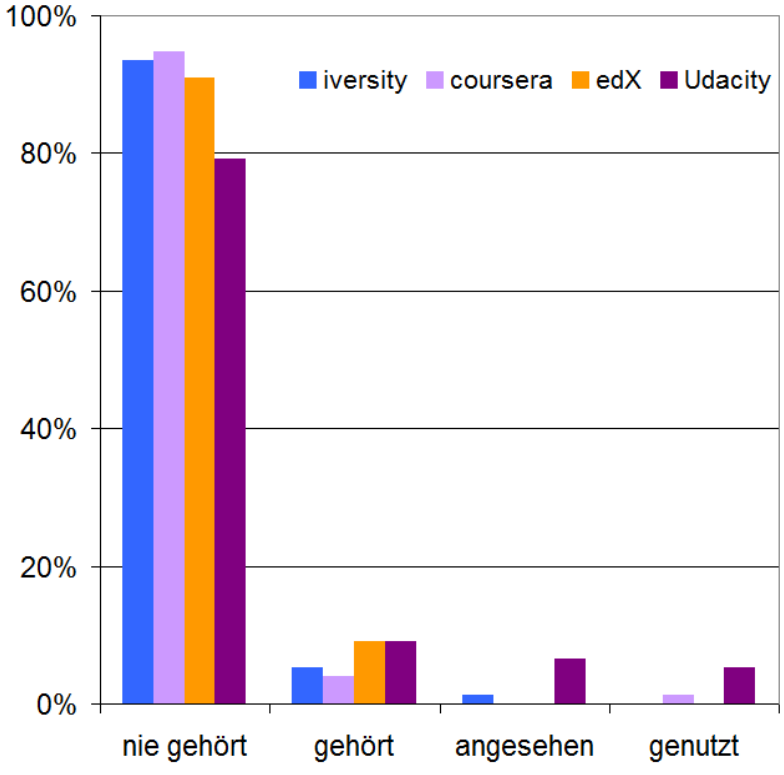
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2350964

Sebastian Thrun, Udacity

We were on the front pages
of newspapers and magazines,
and at the same time, I was realizing,
we don't educate people
as others wished, or as I wished.
We have a lousy product.

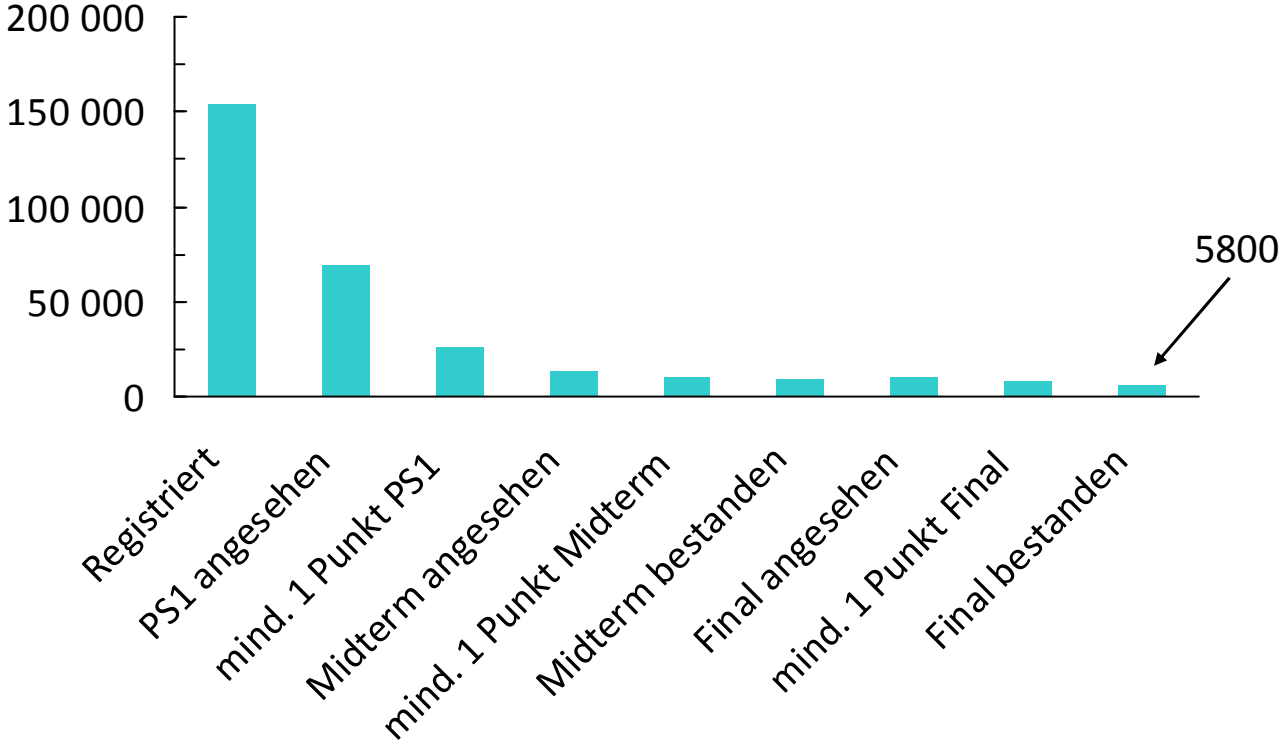
http://www.fastcompany.com/3021473/udacity-sebastian-thrun-uphill-climb

Wer kennt MOOCs?



Umfrage unter lokalen Bachelor- und Master-Studierenden, N = 77

MIT Circuits & Electronics



Daten aus http://tech.mit.edu/V132/PDF/N34.pdf

Bestehensquoten

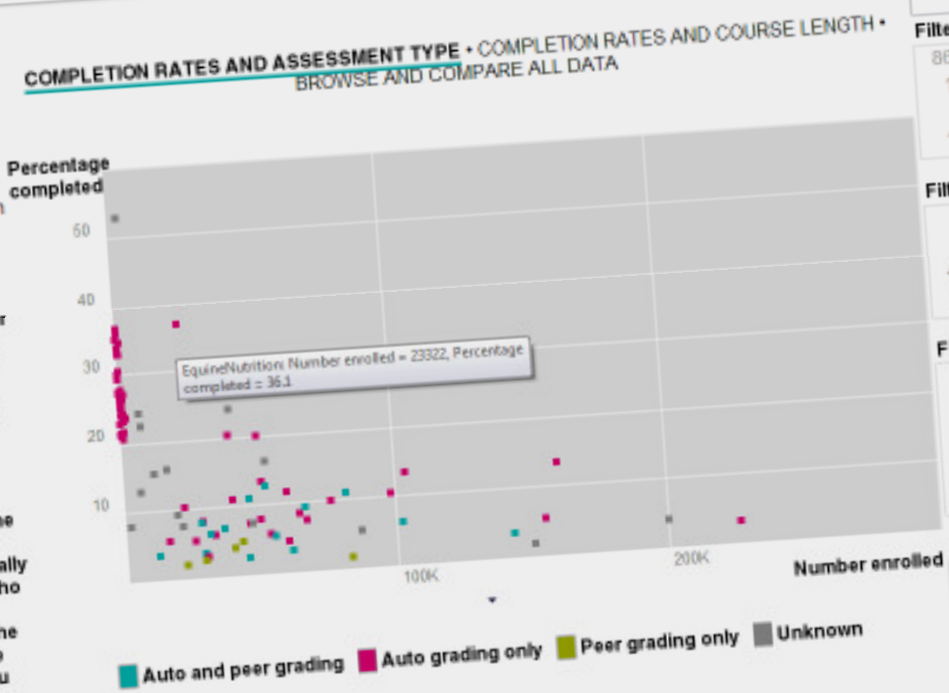
http://www.katyjordan.com/MOOCproject.html

MOOC Completion Rates: The Data

Massive Open Online Courses (MOOCs) have the potential to enable free university-level education on an enormous scale. A concern often raised about MOOCs is that a
enrol for courses, a very small proportion actually complete the course. The release of information about enrollment and completion rates from MOOCs appears to be ad
that is, official statistics are not published for every course. This data visualisation draws together information about enrollment numbers and completion rates from across
stories and blogs.

- **How big is the typical MOOC?** - while enrollment has reached up to ~230,000, 50,000 students enrolled is a much more typical MOOC size.
- **How many students complete courses?** - completion rates can approach 40%, although most MOOCs have completion rates of less than 10%.
- **Clicking on data points on the chart will display further details about each course, including a link to the data source.**
- **To switch between charts showing completion rate plotted against total enrollment, or length of course, or to view all the data as a table, click on the links above the chart.**
- **'Completion rate' is typically defined as the number who earned a certificate of completion or 'passed' the course but there is some variation in the data - you can filter according to different criteria at the top**

COMPLETION RATES AND ASSESSMENT TYPE • COMPLETION RATES AND COURSE LENGTH • BROWSE AND COMPARE ALL DATA



Search

Filter by compl
86 Certificate
1 Certificate 'studio trac
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Filter by platfo
1 Canvas.n
1 Class2go
43 Coursera
4 EdX

Filter by univ
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1 Cal Tec
1 Case W Univers
8 Duke U
1 École

Filter by as
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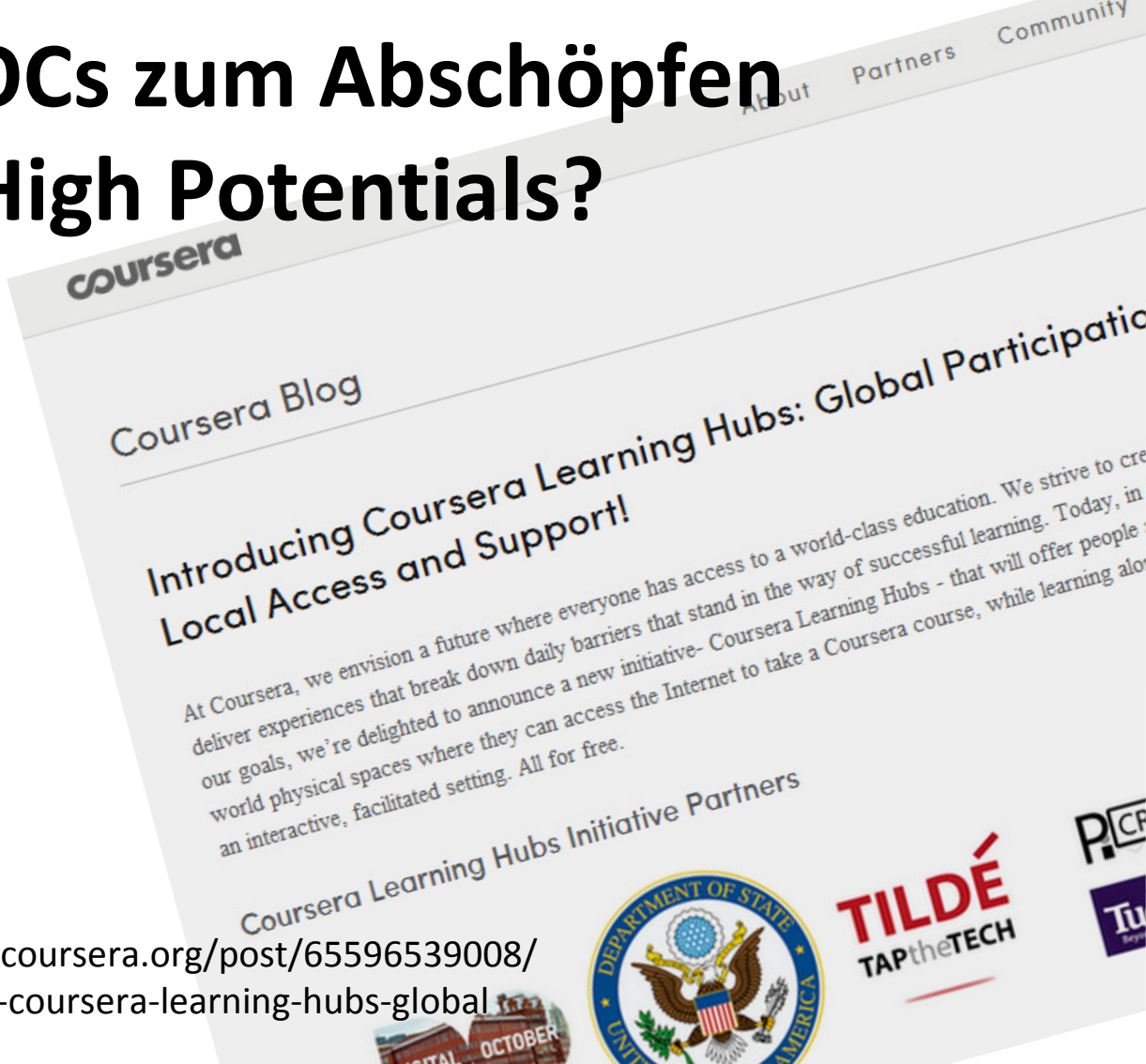
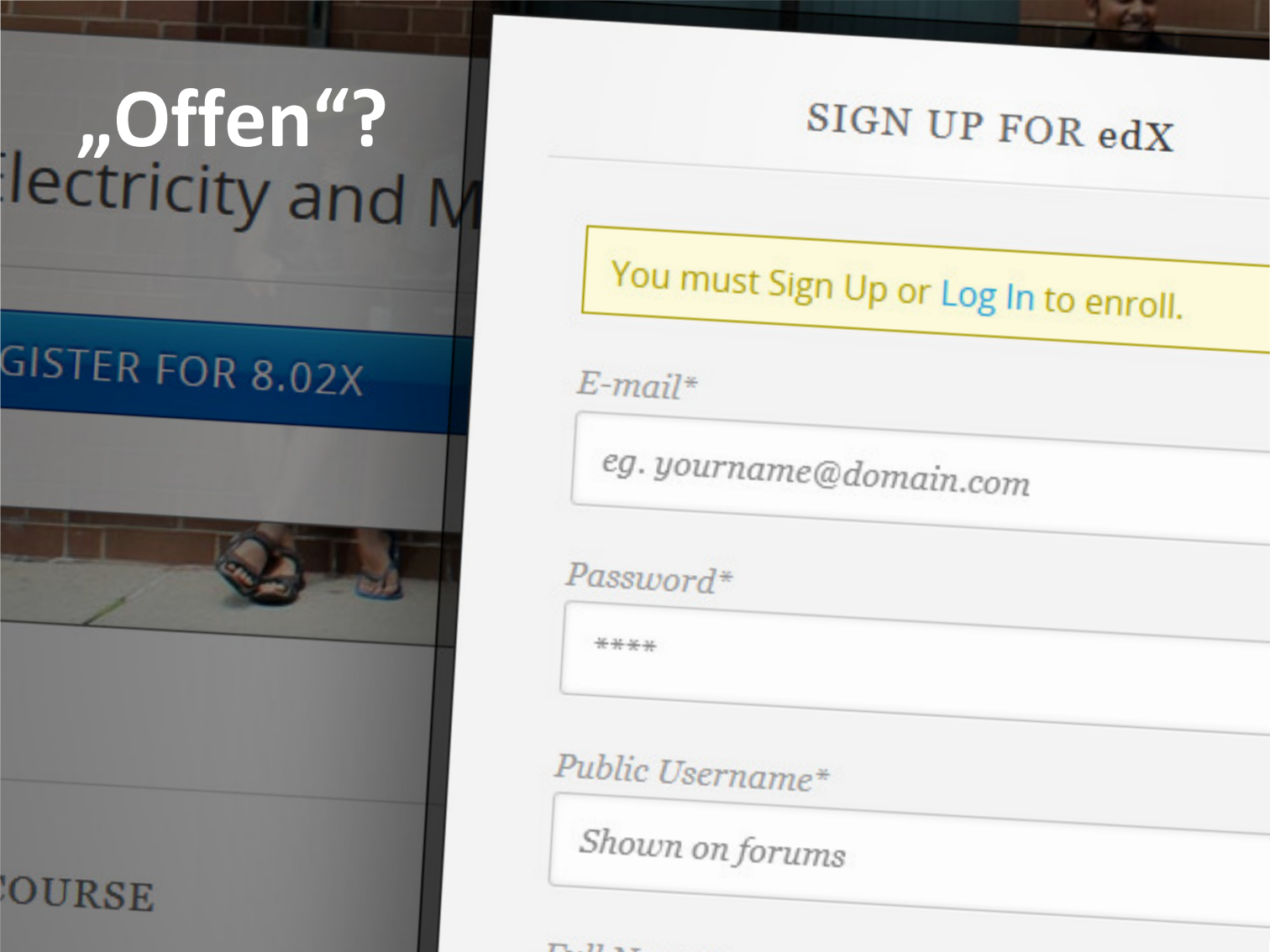
MOOCs zum Abschöpfen der High Potentials?



http://blog.coursera.org/post/65596539008/introducing-coursera-learning-hubs-global

„Offen“?


lectricity and M
GISTER FOR 8.02X
COURSE
SIGN UP FOR edX
You must Sign Up or Log In to enroll.
E-mail*
eg. yourname@domain.com
Password*
****
Public Username*
Shown on forums

„Offen“?

You may not take any Online Course offered by Coursera […] as part of any tuition-based or for-credit certification or program for any college […] without the express written permission from Coursera.

https://www.coursera.org/about/terms

„Gratis“?

http://https://moocfellowship.org/

Kosten Udacity-Master

- 20.000 US-$ an Kursersteller, für jede Wiederholung 2.500 US-$
- 10.000 US-$ an Kursleiter
- 111.000 US-$ Produktion pro Kurs
- 33.000 US-$ Betreuung pro Durchgang (200 Teilnehmer)

http://www.documentcloud.org/documents/703593

Anrechenbarkeit

http://www.sjsu.edu/plus/

San José State University is partnering with the online education company Udacity to offer five affordable online courses this summer. Courses are available to current SJSU and non-SJSU students as well.

Registration for summer courses (see below) closes on May 24 and courses begin June 3. These classes--each rich with interactive opportunities--are open to SJSU students, veterans and high school and community college students.

Students who successfully complete the College Algebra, Elementary Statistics, General Psychology, and Intro to Programming courses will earn credits transferable to most colleges and universities nationwide.

Technical requirements include a computer with Internet service and a web camera.

SJSU Plus Summer 2013 Courses

Course	Course Description	Class Number	Credits/Cost
MATH 6L Entry-Level Mathematics	(Non-baccalaureate credit) A review of topics from elementary and intermediate algebra. Completion of this course with a credit grade indicates satisfaction of the prerequisite for college level math courses. Student MUST register for the seminar AND lab.	Sem: 30767 Lab: 30768	5 credits/$150
MATH 8 College Algebra	Review of basic algebra including complex numbers, functions, graphs, polynomials, inverse functions, and exponential and logarithmic functions. *General Education: B4*	30762	3 credits/$150
	Organization and classification of data		

AI-Class Exams at the University of Freibu

Both, the midterm and the final exam were successfully carried out in Freiburg. Shortly bef
participants were sent out. Thus far, the following Universities have accepted the certifica

1. Tampere University of Technology, Finland, 6 credits, Introduction to Artificial Intelli
2. University of Heidelberg, Germany, Artificial Intelligence, MSc. Informatics
3. University of Freiburg, Faculty for Mathematics and Physics, Germany
4. University of Heidelberg, Germany, 6 credits, MSc. Physics
5. Technical University of Dortmund, Germany
6. Faculty of Computer and Information Science, University of Ljubljana, Slowenia

Congrats to all who passed the exams. We hope we will be able to extend this list s

-- The Freiburg AI Class Team

--- cut here ---

Below you may find the information for the participants of this proctored exam.

Both exams, that is the midterm and final exam for the online course "Introduc
Prof. Peter Norvig, can be taken at the University of Freiburg, supervised by
ally present at the location mentioned below. If you should be unable

that, if you can do it at home, too? Because if
gard that you have passed the exam o
University of Freiburg. Typicall

of Freiburg, pleas
ford AI C

UNI FREIBURG

http://www.informatik.uni-freiburg.de/~burgard/ai_exams/

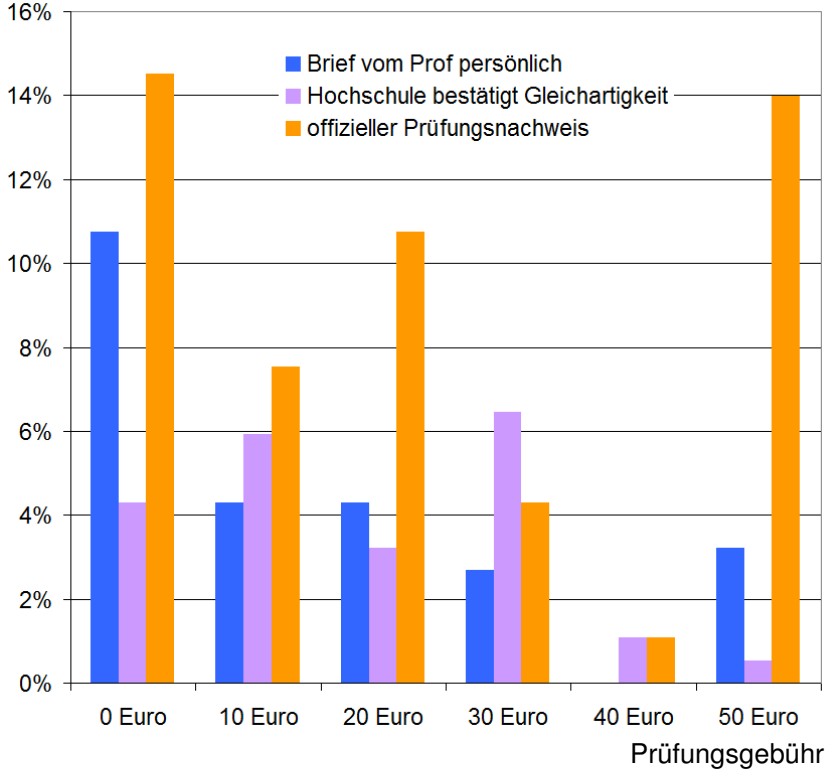
ECTS-Credits für MOOCs?

- Anerkennung von US-Credits?
- ECTS-Credits nur für eingeschriebene Studierende
  - als Weiterbildung deklarieren?
  - NRW: „großer Zweithörer“: anderswo immatrikuliert
- Beweislastumkehr für Anerkennung!

Online-Credits schon jetzt

- Virtuelle Hochschule Bayern
  http://www.vhb.org/fileadmin/download/vhb_statistikflyer_final.pdf
  - Studienjahr 2011/2012:
    100.000 Kursbelegungen
  - WS 11/12: Grundwissen Zivilrecht
    3200 Teilnehmer, 2000 Klausuren
- Virtuelle Akademie Nachhaltigkeit
  http://www.va-bne.de/
  - 3 Credits ECTS (Präsenzprüfung)

Präsenzklausur für Mathe 1?



Umfrage über Facebook und YouTube, 186 Teilnehmer

- Die MOOCs-Industrie
- Fiktionen versus Fakten
- Taylorisierung und Entbündelung
- Illusionen des Lehrens und Lernens
- „Digitalisierung“ an der FH

MOOCs als Quasi-Lehrbücher

FIRST BLENDED MOOC COURSE SLATED FOR BUNK
COLLEGE (BHCC) AND MASSBAY COMMUNITY COL

CAMBRIDGE, Mass. – November 19, 2012 – edX, the world's leading online-learning initiative founded by Harvard University and the Massachusetts Institute of Technology (MIT), today announced a innovative blended massive open online course (MOOC) offering at Bunker Hill and MassBay Community Colleges, the first community to work with edX to bring a new teaching model to the h this public/private initiative, community college connecting students with leading world.

aching methods have the poten college students learn, both in a t Agarwal, president of edX. "Ou ssBay will enable us to work with the country to provide excellent an ever-tightening budget."

San Jose State University and edX Announce Course Expansion to 11 California State University Campuses

SJSU will open a Center for Excellence in Adaptive and Blended Learning. The expanded collaboration follows a promising pilot where edX blended model correlated with higher pass rates

April 10, 2013 01:00 PM Eastern Daylight Time

SAN JOSE, Calif.--(BUSINESS WIRE)--Thousands more California State University students will benefit from a major expansion to the collaboration between San Jose State University and edX, the not-for-profit enterprise founded by Harvard University and the Massachusetts Institute of Te

etailed this announcement at a news conference April

n online urse for -- will b efit thou

students from nearly half of students for the first time last as 11 other CSU campuses. Th

San Jose State's

hrough a $1

nity co d coun the B

ant is part of a $9 million

http://www.businesswire.com/news/home/20130410006022/en/
https://www.edx.org/press/gates-foundation-announcement

Lehrindustrie

- Planung/Produktion/Durchführung als Dienstleistung/Joint Venture: Embanet, Deltak, Synergis, 2U
- Unternehmen als Franchise-Partner von Hochschulen
- Betreuung aus dem Callcenter per E-Mail, Chat oder Videokonferenz

Bezahlte Fernbetreuung?

- Udacity & SJSU:
  25% statt 65% bestehen
  73% mit MOOC-üblichem Publikum
  http://blog.udacity.com/2013/08/sebastian-thrun-update-on-our-sjsu-plus.html
- Udacity: „Courses“
- Udacity & Georgia Tech: Master

MOOCs von/mit Firmen

http://www.opencourseworld.de/pages/coursedescription.jsf?courseId=487693

https://open.sap.com/courses

(Aus-)bildung ohne Hochschulen

- Udacity Open Education Alliance
- Akademie „42“
  in Paris für 1000
  Informatik-Studierende
- Badges, Endorsements, …

- Die MOOCs-Industrie
- Fiktionen versus Fakten
- Taylorisierung und Entbündelung
- Illusionen des Lehrens und Lernens
- „Digitalisierung“ an der FH

„Gefühltes“ Lernen

- „Star-Professor“-Effekt

  Carpenter et al. Appearances can be deceiving: Instructor fluency increases perceptions of learning without increasing actual learning. Psych. B&R 2013.

- Missverständnisse verfestigt

  Muller. Designing effective multimedia for physics education. PhD Thesis University of Syndey, 2008.

- „Amount of Invested Mental Effort“

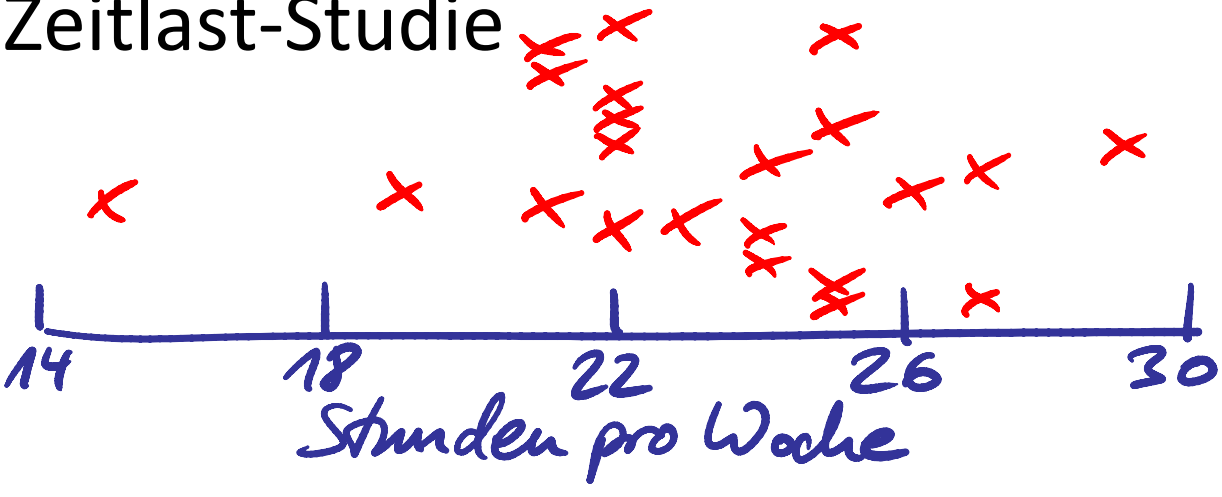
  Salomon. Television is “easy” and print is “tough”. J. Ed. Psychology 76(4), 647-658 (1984).

Leichtes Lernen?

- „Desirable Difficulties“

  Bjork, Dunlosky, Kornell. Self-Regulated Learning: Beliefs, Techniques, and Illusions. Annu. Rev. Psychol 64, 417-444 (2013).

- Zeitlast-Studie

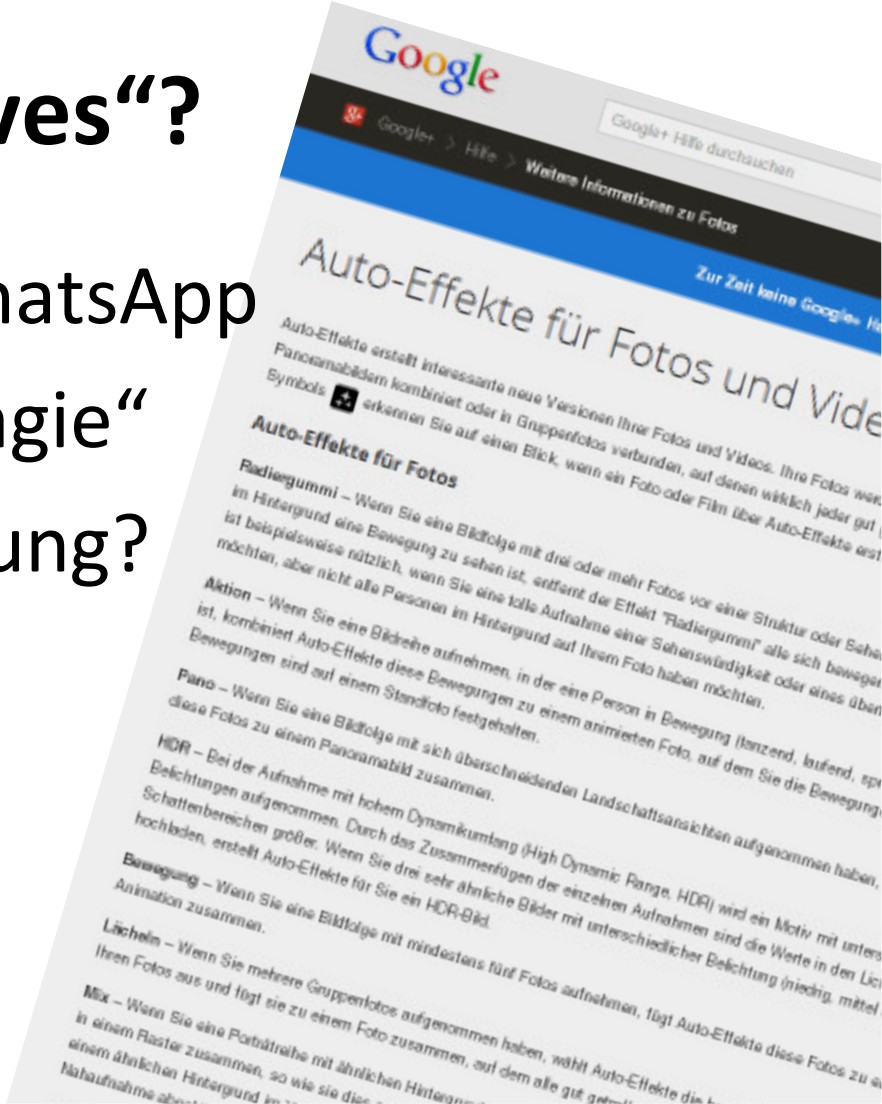


Daten: R. Schulmeister, C. Metzger, T. Martens: Heterogenität und Studienerfolg. http://www.zhw.uni-hamburg.de/zhw/?page_id=419

„Digital Natives“?

- Facebook, WhatsApp
- Software-„Magie“
- Verschriftlichung?
- Illusion des Multitasking

Sanbonmatsu et al.
Who multi-tasks and why?
PLOS ONE 2013.



„Stoff vermitteln“?

- Force Concept Inventory, 1985
- Harvard „A Private Universe“, 1987
- ein Ingenieur: *Squared or cubed is the most complex thing you do*.
  Kent/Noss. The mathematical components of engineering expertise. Engineering Education 2002.
- Im 4. Semester Dreisatz vergessen?

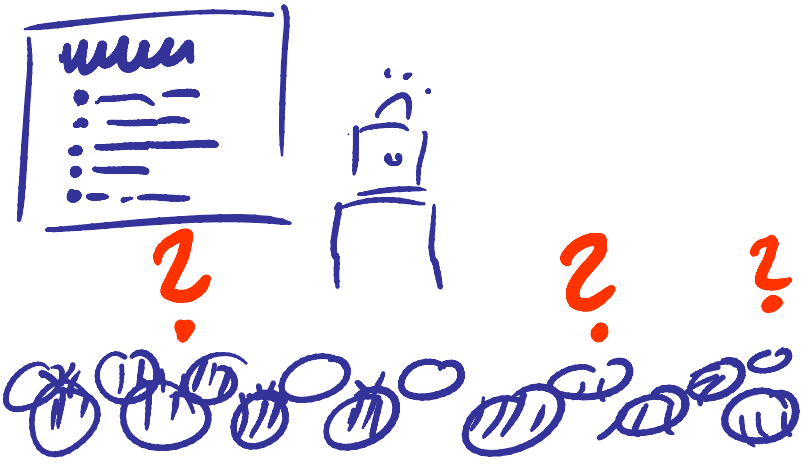
- Die MOOCs-Industrie
- Fiktionen versus Fakten
- Taylorisierung und Entbündelung
- Illusionen des Lehrens und Lernens
- „Digitalisierung“ an der FH

Windows-Tablet-PC für 250 €*

* gebraucht

an der Hochschule zu Hause

„Stoff“ üben



an der Hochschule — zu Hause

üben, denken, diskutieren — **„Stoff“**

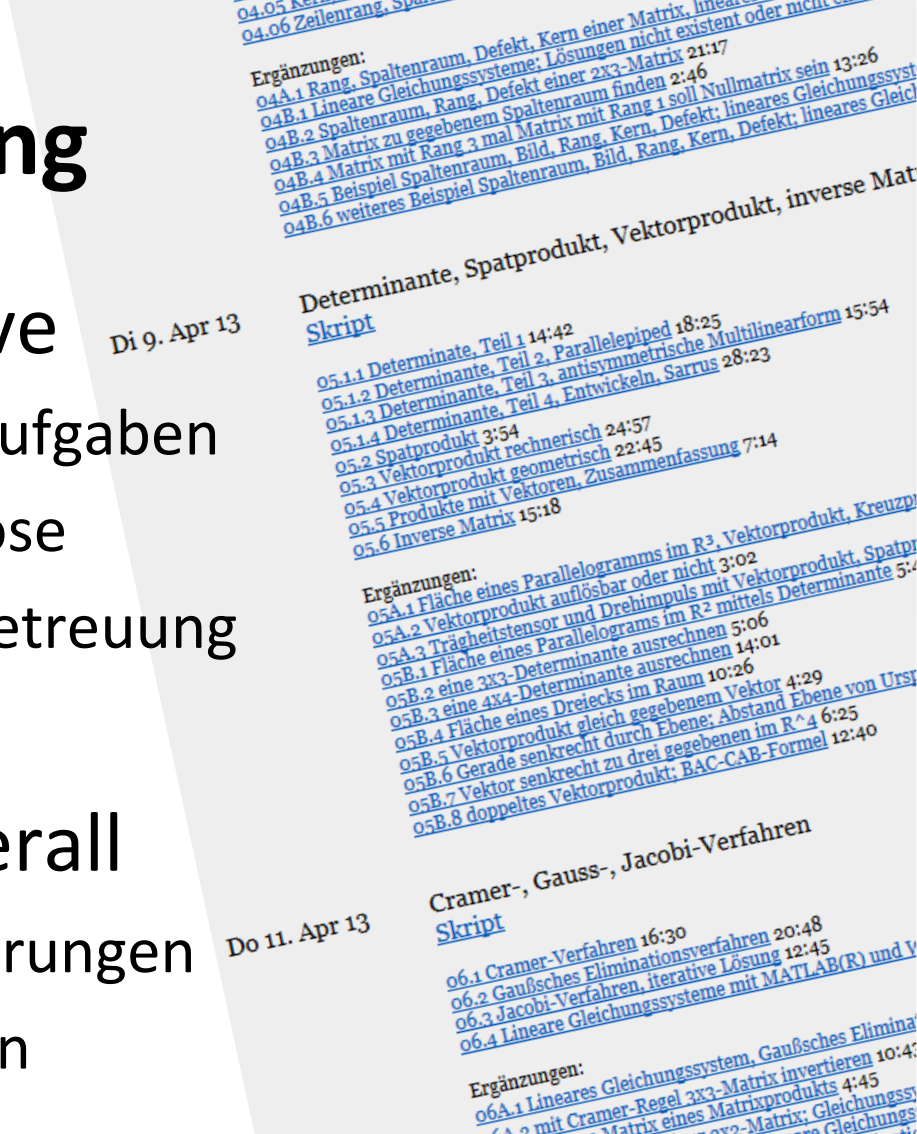
Inverted Classroom Model

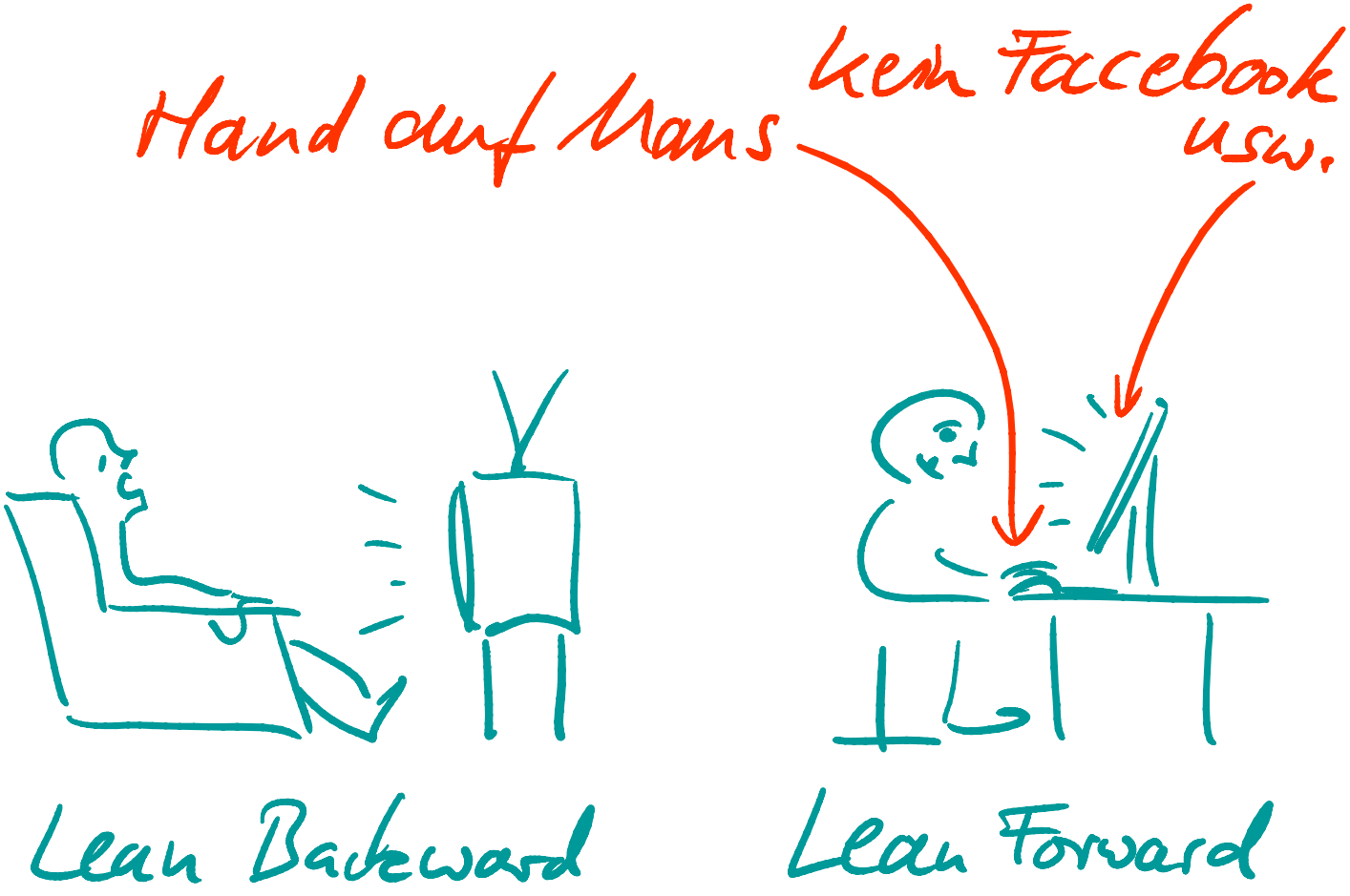
= Flipped Classroom

Baker. The Classroom Flip (2000).
Lage/Platt/Treglia. Inverting the Classroom (2000).

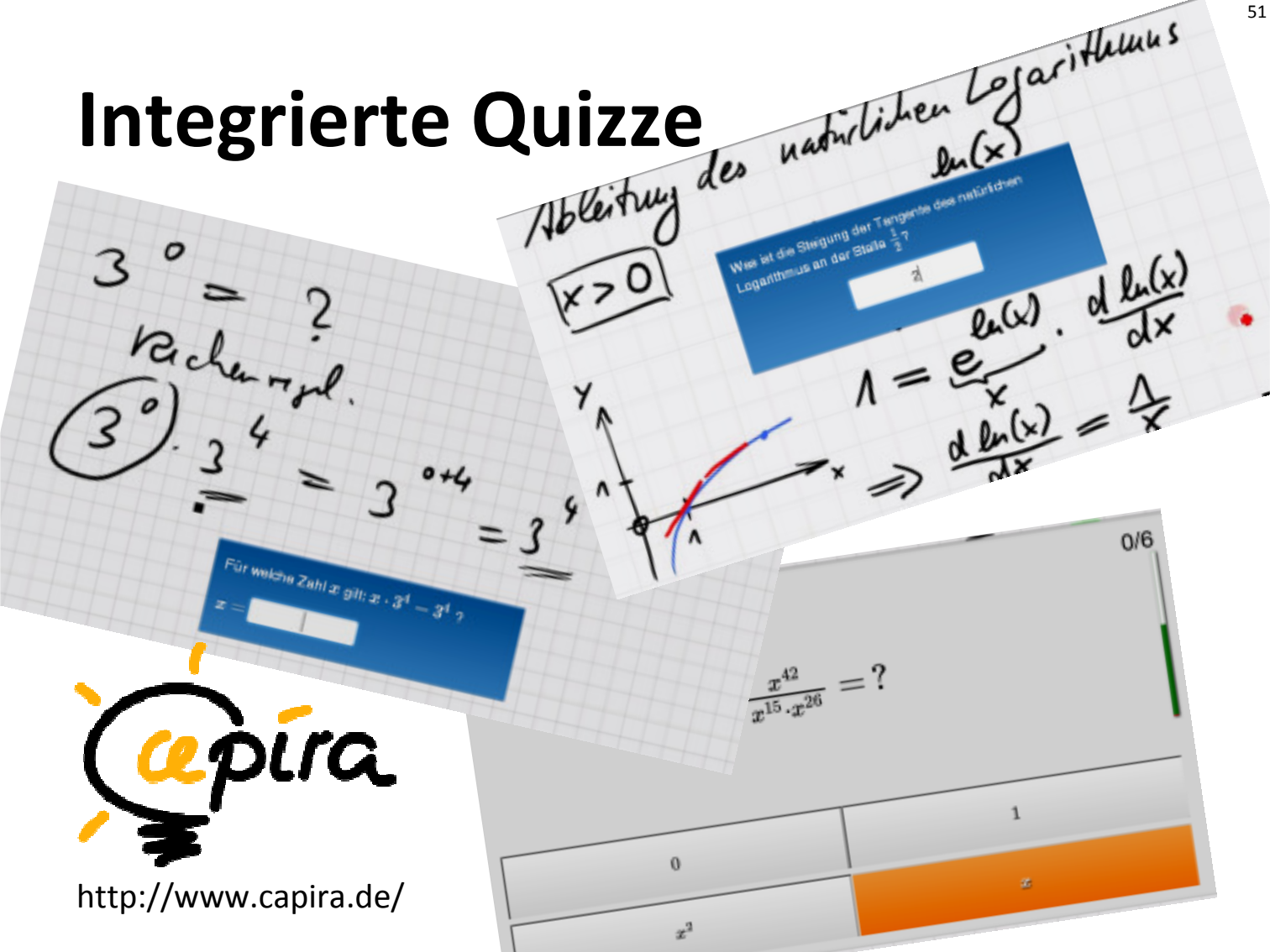
Arbeitsteilung

- Dozent(in) live
  - komplexere Aufgaben
  - tiefere Diagnose
  - persönliche Betreuung
- Computer immer & überall
  - Standarderklärungen
  - Fingerübungen




Hand auf Maus
kein Facebook usw.
Lean Backward
Lean Forward

Integrierte Quizze



http://www.capira.de/

Ist das noch Hochschule?

- Unselbständigkeit?
- Nichtlesen, verflachte Darstellung?
- „Desirable Difficulties“

  Bjork/Dunlosky/Kornell. Self-Regulated Learning: Beliefs, Techniques, and Illusions. Annu. Rev. Psych. 64, 417-444 (2013).

- Wie die didaktische Engführung überwinden?

Was ist Bildung?

- Eher Stoff oder eher Sozialisation?
- Mathematik als nachgelagerte Aufnahmeprüfung?

Anregungen

- Lieber hemdsärmelig und kurz statt „professioneller“ langer Kurse
- Open Educational Resources nutzen und erzeugen
- Fokus auf Betreuung und Projekte statt auf „Stoff“ und „Materialien“

Werkstatt Lernen und Lehren

Tag der Lehre:
Mi, 14. Mai 2014