Hochschule Magdeburg • Stendal

Berner Fachhochschule
Haute école spécialisée bernoise
Bern University of Applied Sciences

(Open) Learning Content in Applied Sciences

With a focus on two UASes in Germany and Switzerland

Presentation overview

- Context
- About E-Learning
- About Open Content
- Four Final Conclusions

Context

Tertiary Education System in Germany and Switzerland (simplified)

Universities (UNI)

Universities of Applied Sciences (UAS)

Teacher Training Colleges, others

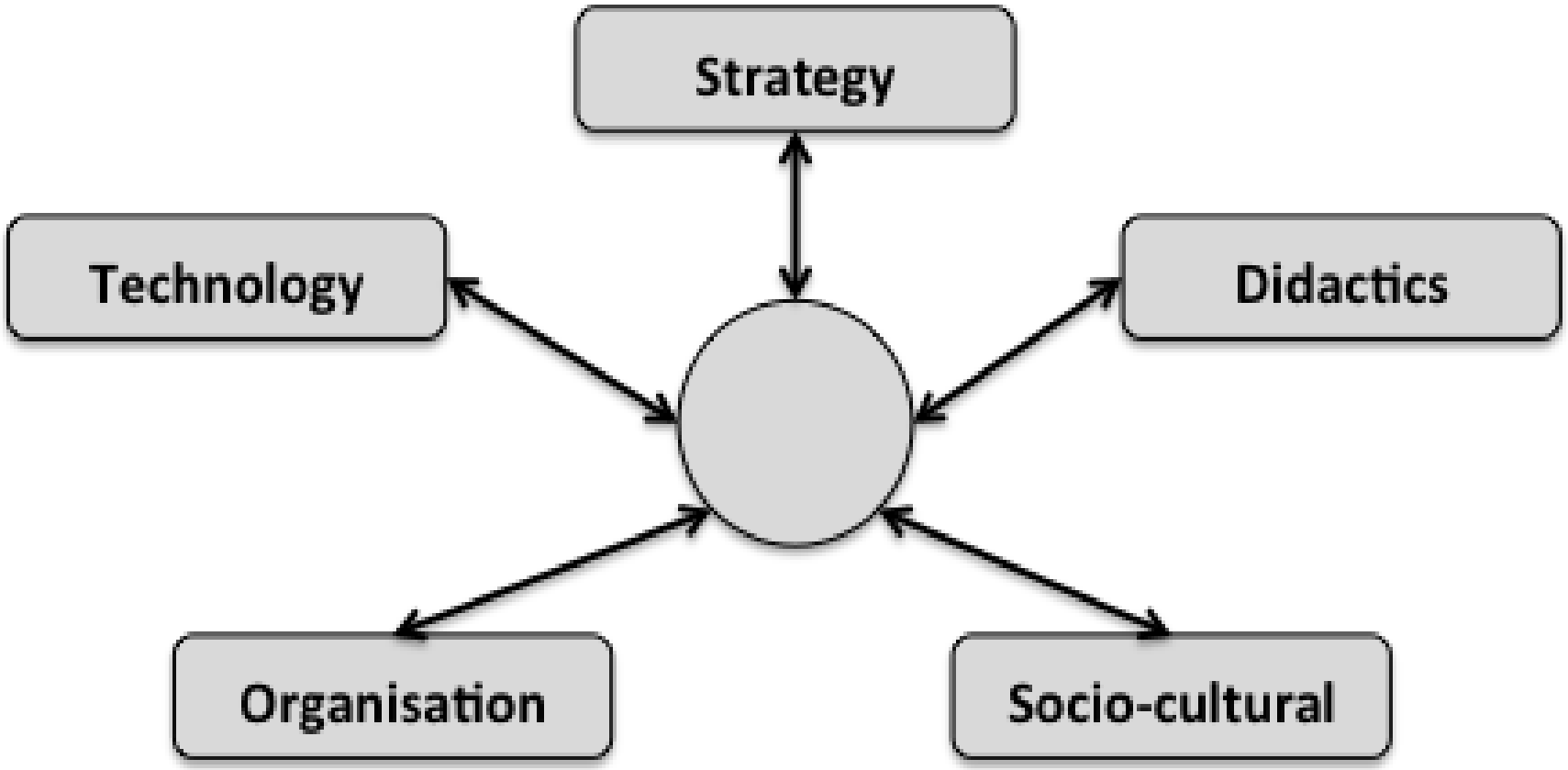
	Bern	Magdeburg-Stendal
Fndt.	1997	1991
Size	Six departments, 6800 students and 1500 employees	Seven departments, 6600 students and 430 employees
Prgr.	29 bachelor's and 21 master's degree courses	27 bachelor's and 18 master's degree courses
Profile	Architecture, Wood and Civil Engineering; Agricultural, Forest and Food Sciences; Arts and Design; Engineering and Information Technology; Business, Health, Social Work; Sports	Civil Engineering, Engineering and Industrial Design, Water and Waste Management, Social and Health Sciences, Applied Human Sciences, Communication and Media, Economics
Sites	Various sites in 4 different locations, multilingualism	Two sites 60 km apart
Rem.	Situated in and around the thriving capital of Switzerland; healthy economy	Situated in the former East Germany, a region under high economic and demographic pressure

About E-Learning

History of e-learning

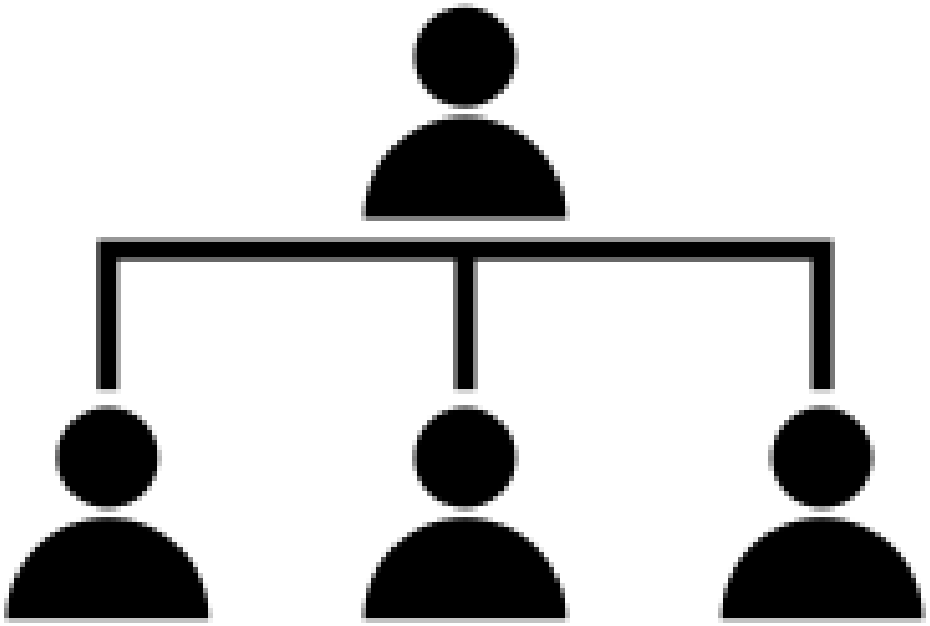
		
Rather Top Down	Swiss Virtual Campus (since 2000-2007, by parliament) Switch as technical hosting network Commonly agreed upon position papers and strategies (e.g., in the framework of Swiss Universities).	Various Government Programs since late 90ies Quality Pact for Teaching (2011-2020) Magdeburg-Stendal: Centre for Academic Development and Applied Research in Higher Education Saxony-Anhalt: HET LSA – collaborative network for managing heterogeneity in higher education
Rather Bottom Up	Various smaller projects at the level of individual teachers, study courses, institutes.	

Analytical dimensions

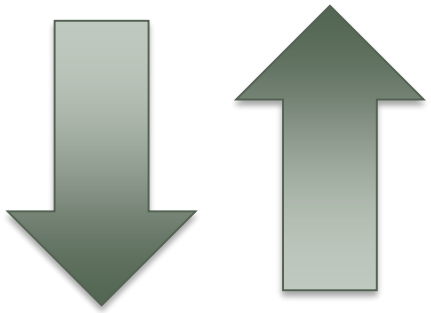


(according to Euler/Seufert, 2005)

Findings are grouped according to hierarchical levels



Top Down:
Critical Success Factors



Bottom Up:
General Observations

Critical Success Factors

		
University has e-learning strategy	++	++
University has team of specialist e-learning experts	++	++
The university has one LMS for all faculties and students	++	++
University offers flexibility to lecturers	++	+++
University evaluates lecturers by learning impact, not lecturing hours	++	++
University invests in structures rather than (big) projects	+++	++

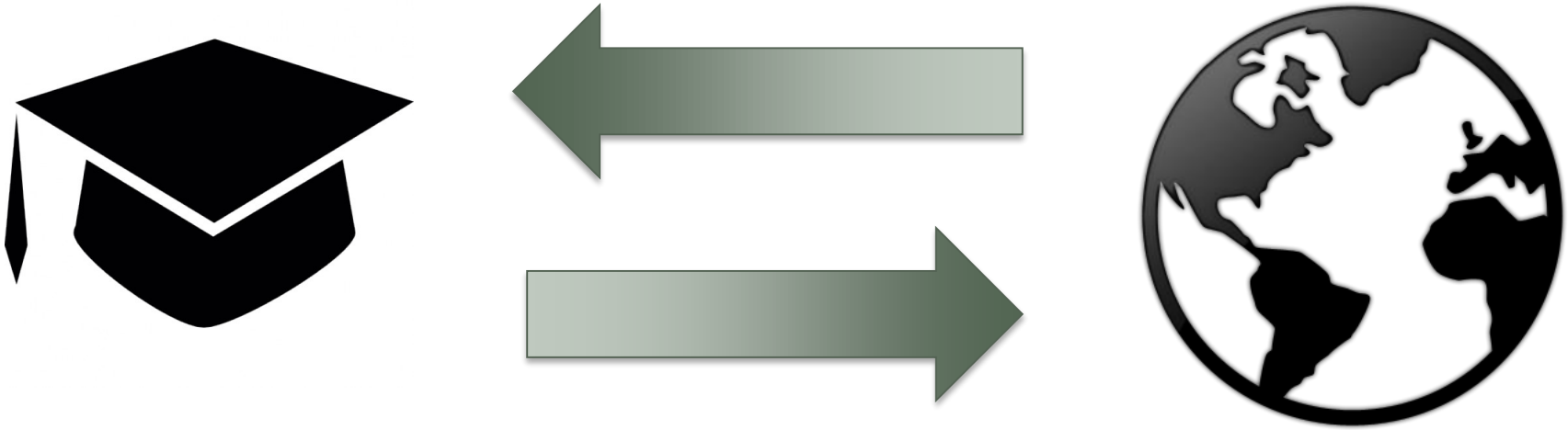
General Observations

		
The use of an LMS can be considered standard practice	++	++
E-learning helps with new challenges from student population (such as ageing students).	++	+++
Specialized solutions are always needed - and used (Adobe connect for students far away, solutions for mathematic formulae, rooms for online examinations)	++	++
E-learning failures can be observed both in Switzerland and Germany (such as old/unused solutions, technical issues)	++	++
Sometimes e-learning offers unexpected possibilities (e.g. cost-efficient use of OER in lectures)	+++	+++

About Open Content

Open content: Incoming or outgoing?

Incoming



Outgoing

Focus: Videos (Youtube) for lecturing, Wikipedia as entry point for research.

Youtube/Incoming

Advantages:

- Professional video environment.
- Lot of usable learning content.

Disadvantages:

- Learning goal description necessary.
- Quality control necessary.
- Advertising. Google tracking.
- Video might vanish.

Youtube/Outgoing

Advantages:

- Easy and usable.
- Encourages other teachers.
- Outreach, student acquisition.

Disadvantages:

- Multimedia production.
- Copyright considerations.
- Youtube knowledge needed.

Wikipedia/Incoming

Advantages:

- Students know it anyway.
- Usually a valuable entry point for research.

Disadvantages:

- No citations possible.
- Encyclopaedia do not replace research literature or school books.

Wikipedia/Outgoing

Advantages:

- Wikipedia works like a research community.
- Outreach, student acquisition.

Disadvantages:

- Might upset other Wikipedians (negatively perceived as advertising, students might not produce quality).

Conclusions

Youtube:

- Use its lecturing videos. Use it for streaming your lectures (outreach).
- Tackle the issues with simple rules.

Wikipedia:

- Know what it says about your subject.
- Use it for outreach.
- If you can, use it for student work.

How it looks in the LMS

Implicit differentiation

The videos below explain the subject – if necessary, you can watch them several times:

This video explains the lecture slides:
https://www.youtube.com/watch?v=AgEqWTVrZww

Watch this video only until minute 1'43":
https://www.youtube.com/watch?v=_kLWcuJzYh8

Here two further videos with more examples:
https://www.youtube.com/watch?v=4OQjzl3VHGw
https://www.youtube.com/watch?v=ximF06lmqPM

Read also the lecture slides about implicit differentiation below, and compare them with chapter 7/7.1 of the book.

Your learning goal: You should be able to understand and to re-calculate the lecture slides on your own.

Four Final Conclusions

Recommendations - 1

<< *Don’t invent. Look for de-facto standards and best practices.* >>

Recommendations - 2

<< Look for the simple things that work. >>

Recommendations - 3

<< *Think about didactics.* >>

Recommendations - 4

<< *Look for unexpected gains and new combinations.* >>

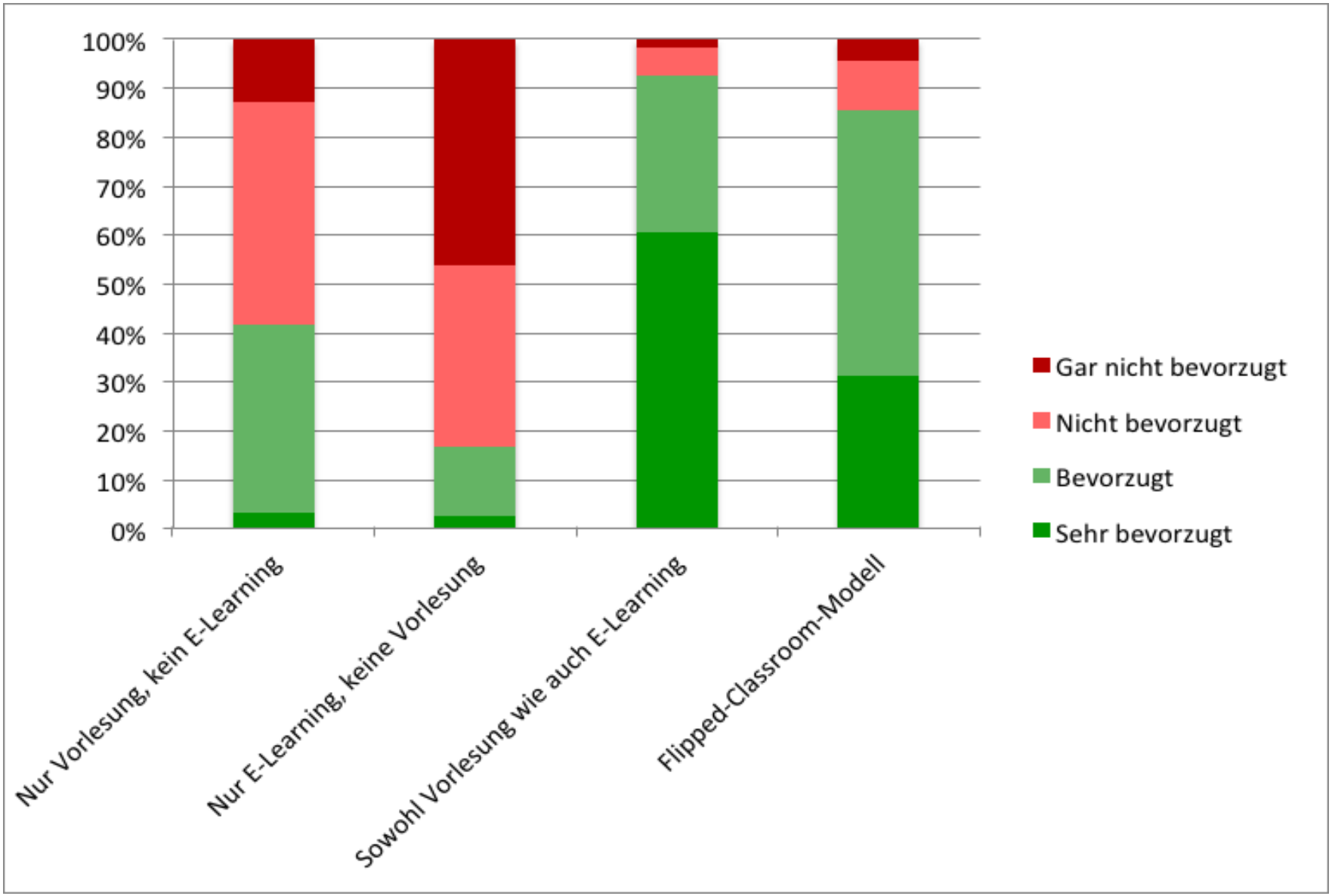
End of Presentation

Anne Lequy
Timo Staub
Thomas Hodel

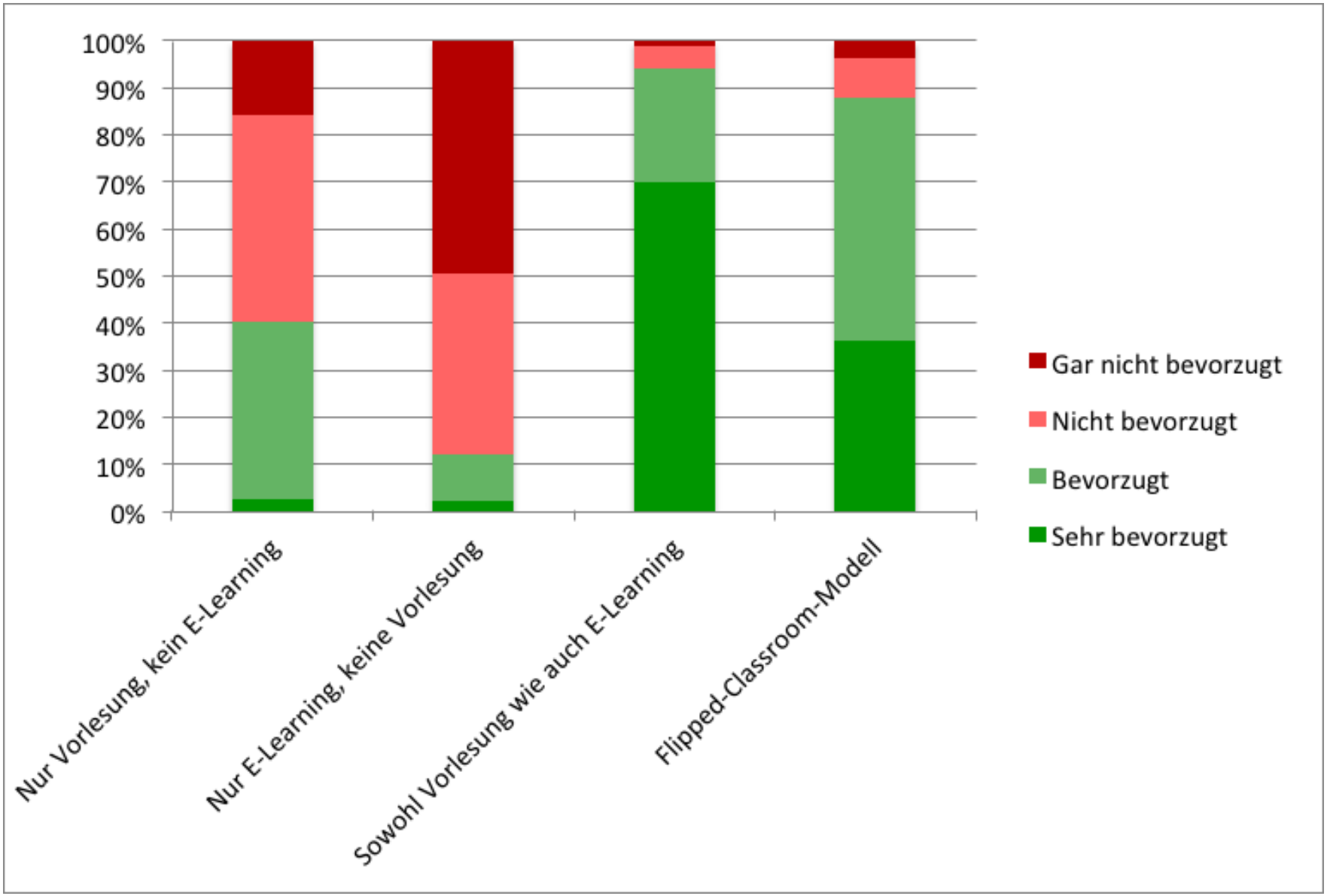
Reserve Slides

(student feedback from open source learning project)

Student feedback in open source project - all



Student feedback – early adopters



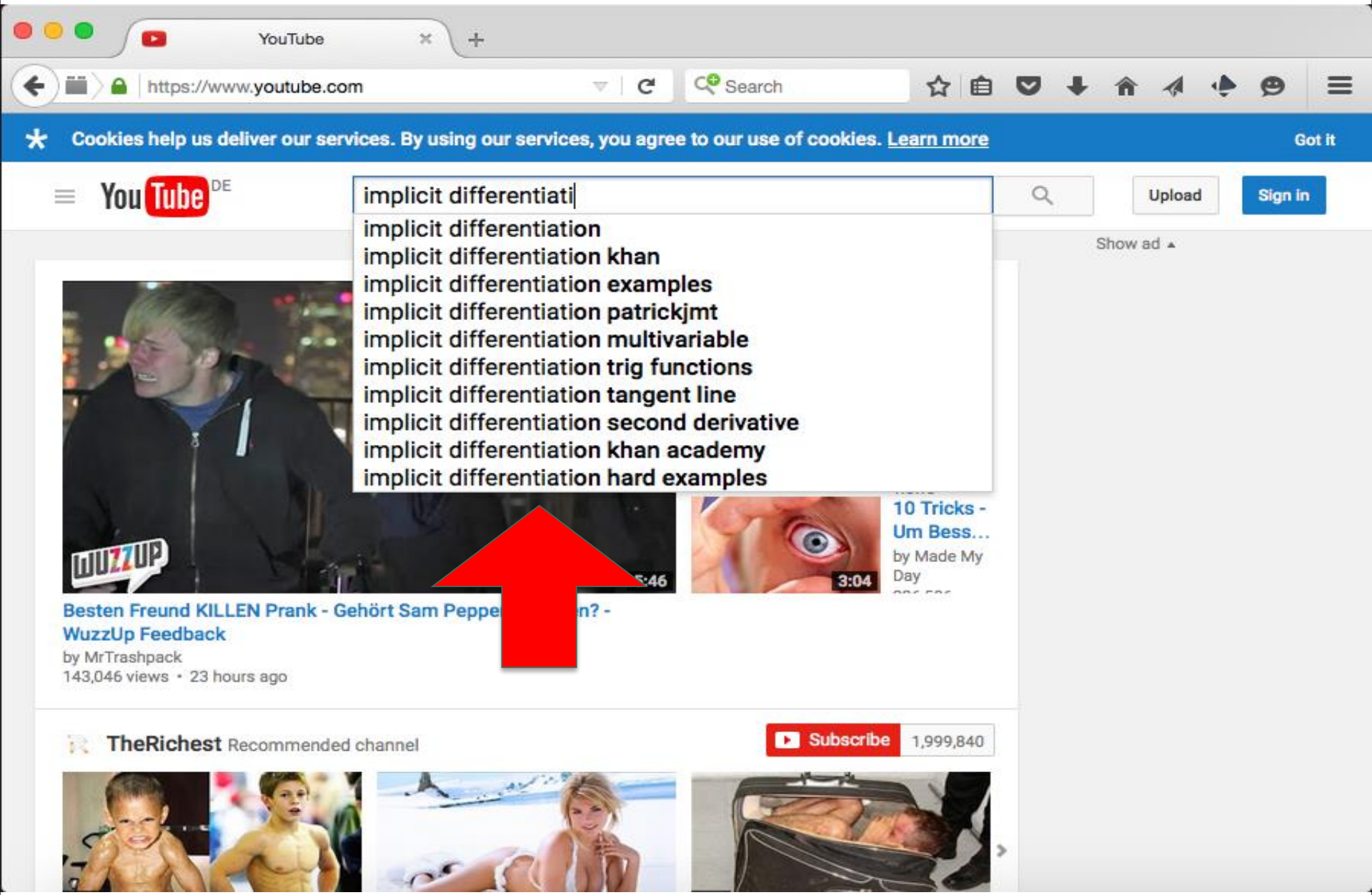
Comments coming from the students

Comment
Durch das Flipped-Classroom-Modell hat man mehr Zeit zur Verfügung, um Aufgaben zu lösen. Dies erscheint mir wichtiger.
Das Lernvideo müsste noch ausführlicher gestaltet werden.
Flipped Classroom-Modell in allen Modulen einführen!
Da das Thema nicht sehr schwierig war, ging es gerade noch mit selber erarbeiten. Alle anderen Themen, die wir im 1. Semester behandelt haben, würde ich nicht gerne mit E-Learning e
Ich fand gut, dass das Lernziel klar angegeben war - ob ich es nur verstehen oder auch anwenden können muss.
The videos of chapter 7 were too simple compared with the exercises in class. The slides were not really clear to understand (for example: taxes).
The videos were very helpful and understandable. The advantage of watching a video is that you can pause/restart it and re-watch it in case something is unclear. I independantly always
On Moodle, it should be mentioned what chapters of the book we are covering, including the "homework".
Every chapter should have been done like this! F.i., link to Youtube videos, etc. Very useful way to study at home.
I would prefer if there would be an e-learning of all the lectures. Because everybody can learn in his or her individual speed.
I want only to have class lectures - it is better.
(I wish) e-learning and contact classes with exercises and further explanations. Aula lectures are not my preferred thing because we don't apply there.
It would be nice if e-learning were combined with lectures in every single topic, it is easy to understand and very interesting.
E-Learning is a new way of teaching and studying. It is supposed to be used in our future study!
We would like to have both lectures and e-learning. If somebody is sick, cannot attend the class, then she/he can learn online.
Patrick JMT was extremely helpful, Elasticity video was good. Lecturer video was difficult to understand. Interactive class was brilliant.
Was very pleased with the video material provided. Giving internal videos as well as external sources helps the students for self study.
Wenn es auch e-Learning gäbe, könnten z.B. Repententen, die den Unterricht nicht besuchen können, davon profitieren.
Ich fand die Youtube-Videos sehr hilfreich denn man kann sie immer wieder anschauen.
Tipptopp
E-Learning + Übungsstunden = optimal
Es wäre praktisch, wenn es auch Chapter-Folien gehabt hätte und nicht nur die Vorlesungsfolien von Herrn Schmidt. Es waren viel zu viele Folien, man hätte dies mit einem Fünftel mache
Meiner Meinung nach haben wir als Studierende Anspruch auf Vorlesung. Als Unterstützungsfunktion finde ich es sehr sinnvoll, ein E-Learning zur Verfügung zu stellen. Flipped Classroom
Die Videos waren sehr hilfreich und einfach erklärt. Wenn man etwas nicht verstanden hatte, konnte man zurückspulen.
Youtube-Videos hilfreich und interessant. Als wichtig empfinde ich jedoch auch die Möglichkeit einer interaktiven Stunde, bei welcher Probleme diskutiert werden können.
Etwas besser strukturiertes Video nehmen. Am besten von den Dozenten selber gedreht. Das Video über die Elastizität fand ich nicht sehr bereichernd und verständlich, da zu schnell und
Beim E-Learning kann man Fragen nicht mit dem Dozierenden besprechen.
Wenn E-Learning, dann mit hilfreichen und ausführlichen Videos. Ein Video mit Kommentaren zu den Folien und kopierte Links aus Youtube bringen nichts!!
Evtl. dass man die Maus auch sieht, sodass der Dozent zeigen kann was er gerade erklärt im Video.
Das Video sollte vom Dozenten gemacht werden.
Ich finde die Idee gut und die Variation zwischen Vorlesung und Videos ist fördernd, da man die Thematik von verschiedenen Blickwinkeln sieht. Zudem würde ich Podcasts der Vorlesung
Elastizität war für mich nicht nur mit E-Learning auf Moodle verstehbar. Zusätzlicher Stoff/zusätzliche Informationen auf Moodle wären generell sehr hilfreich.
Nur E-Learning ist meiner Meinung nach nicht sinnvoll. Eine Kombination aus E-Learning und anschliessend einer Vorlesung zur Ergänzung wäre optimal.

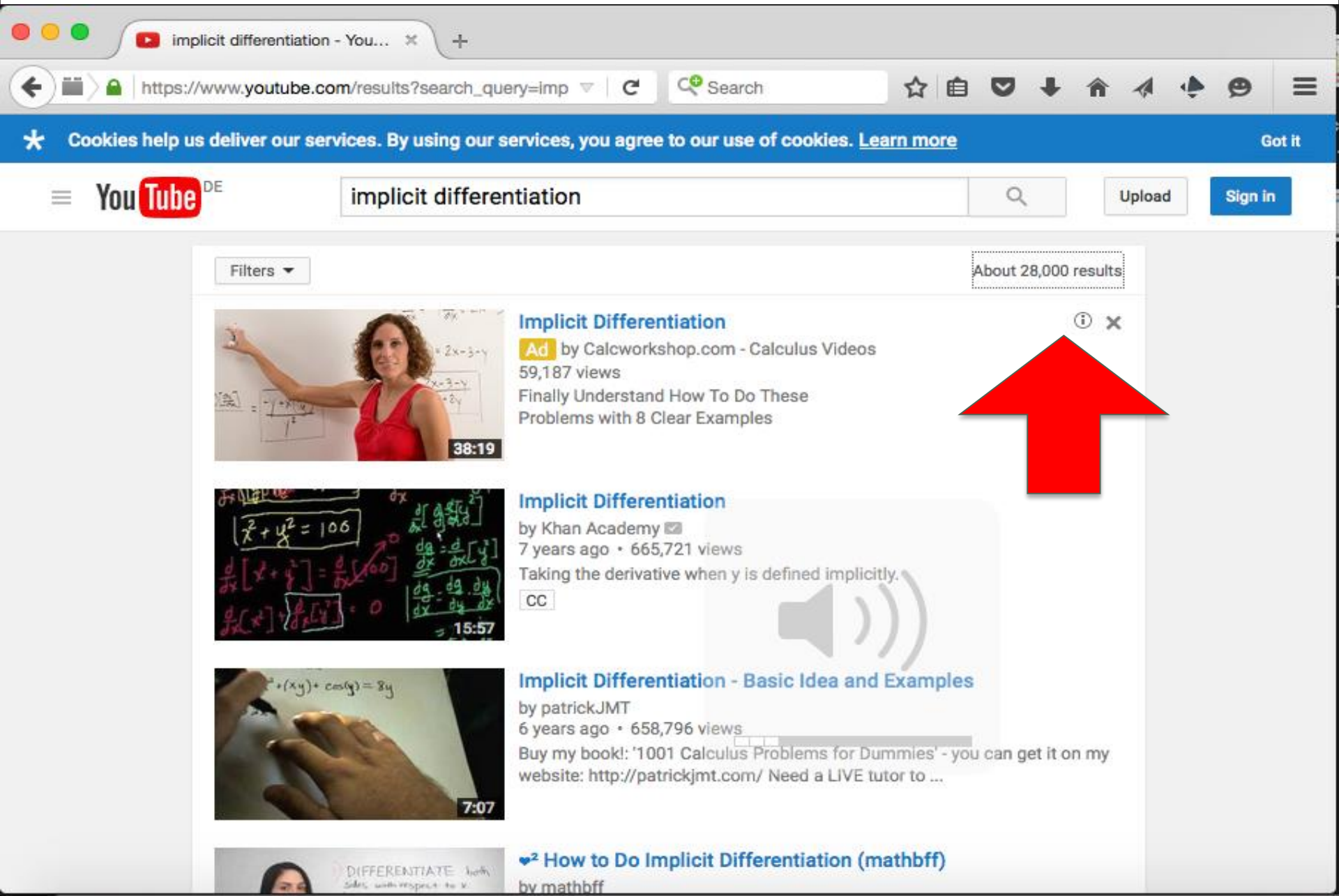
Reserve Slides

(about Youtube)

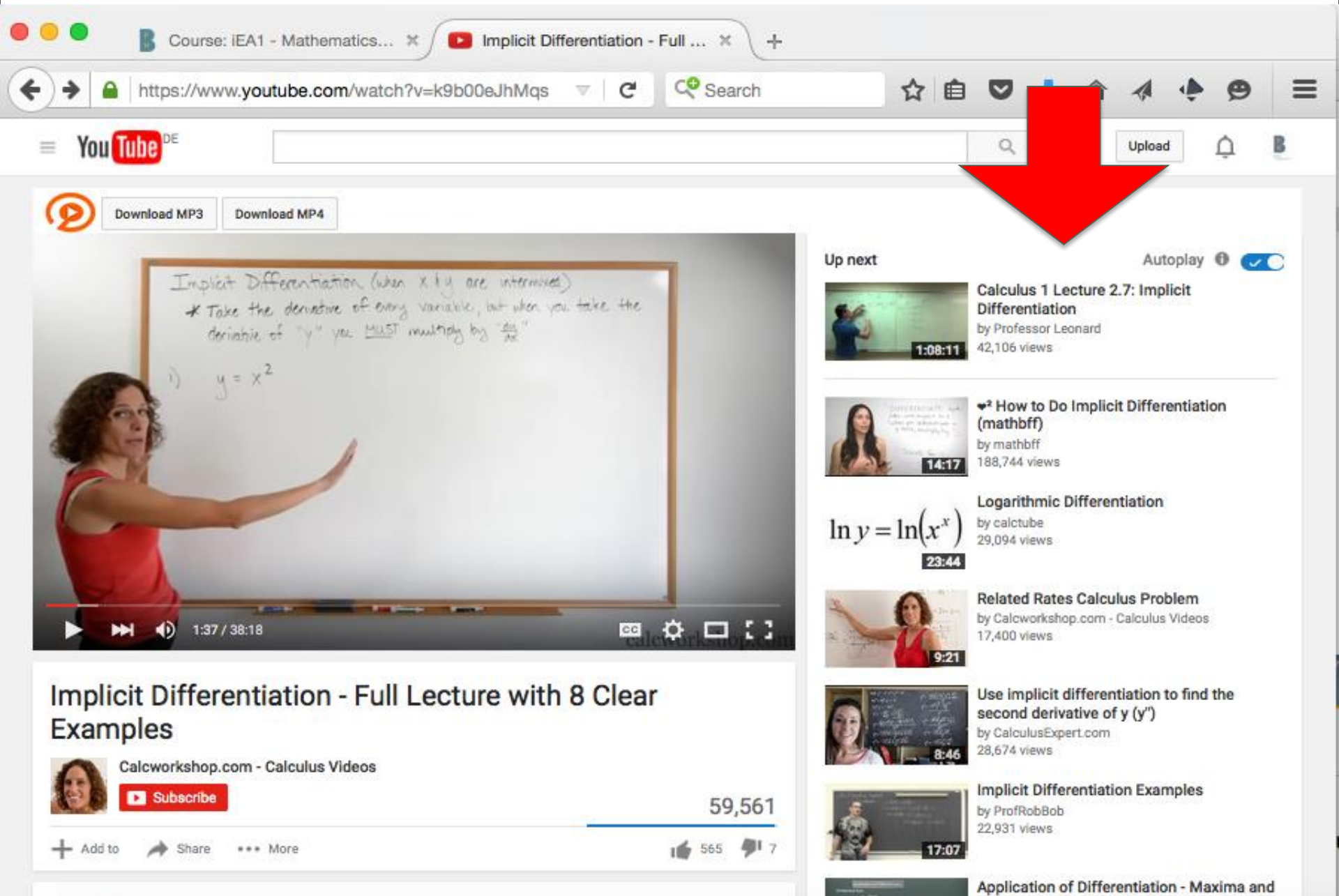
Youtube: Implicit Differentiation - 1



Youtube: Implicit Differentiation - 2



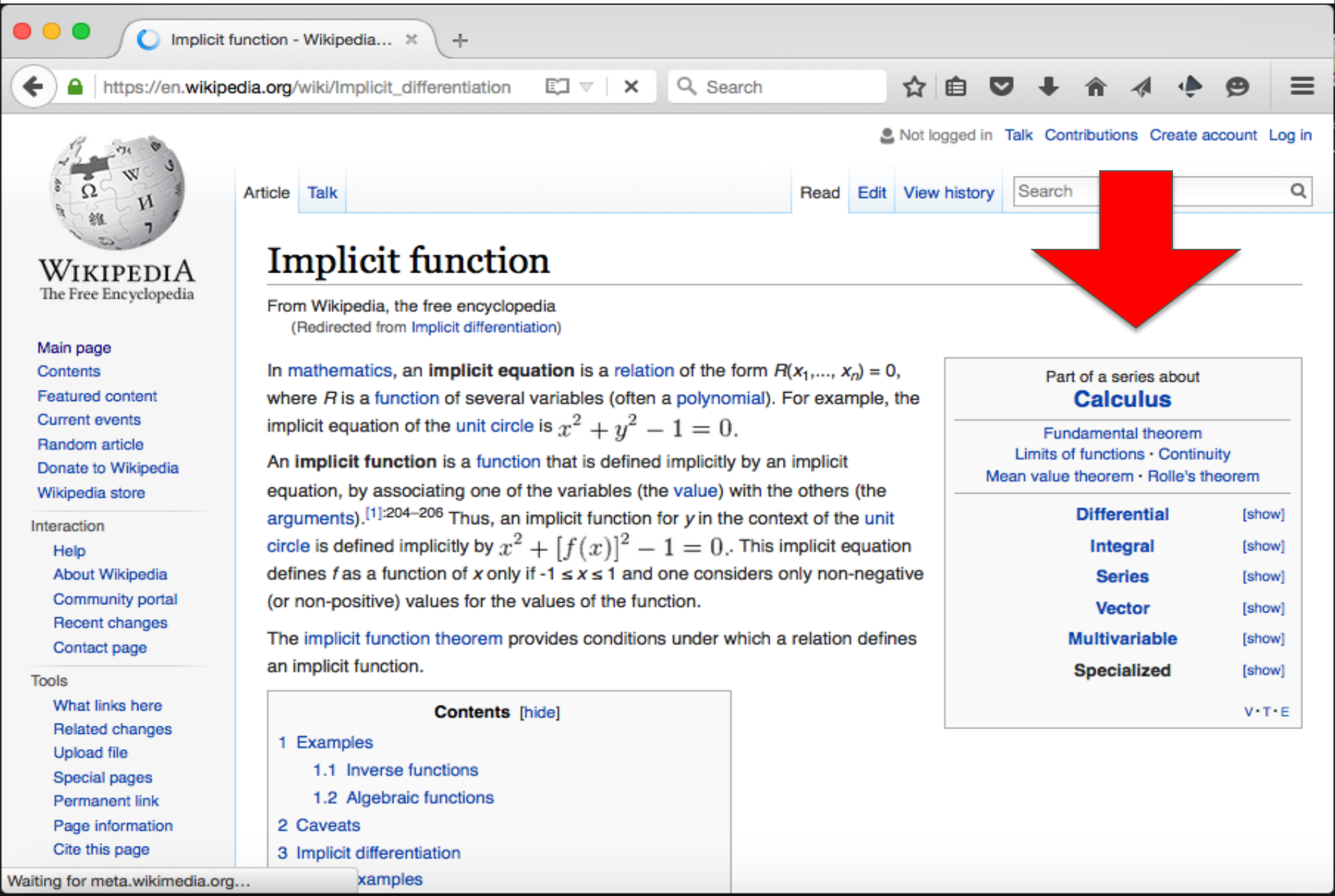
Youtube: Implicit Differentiation - 3



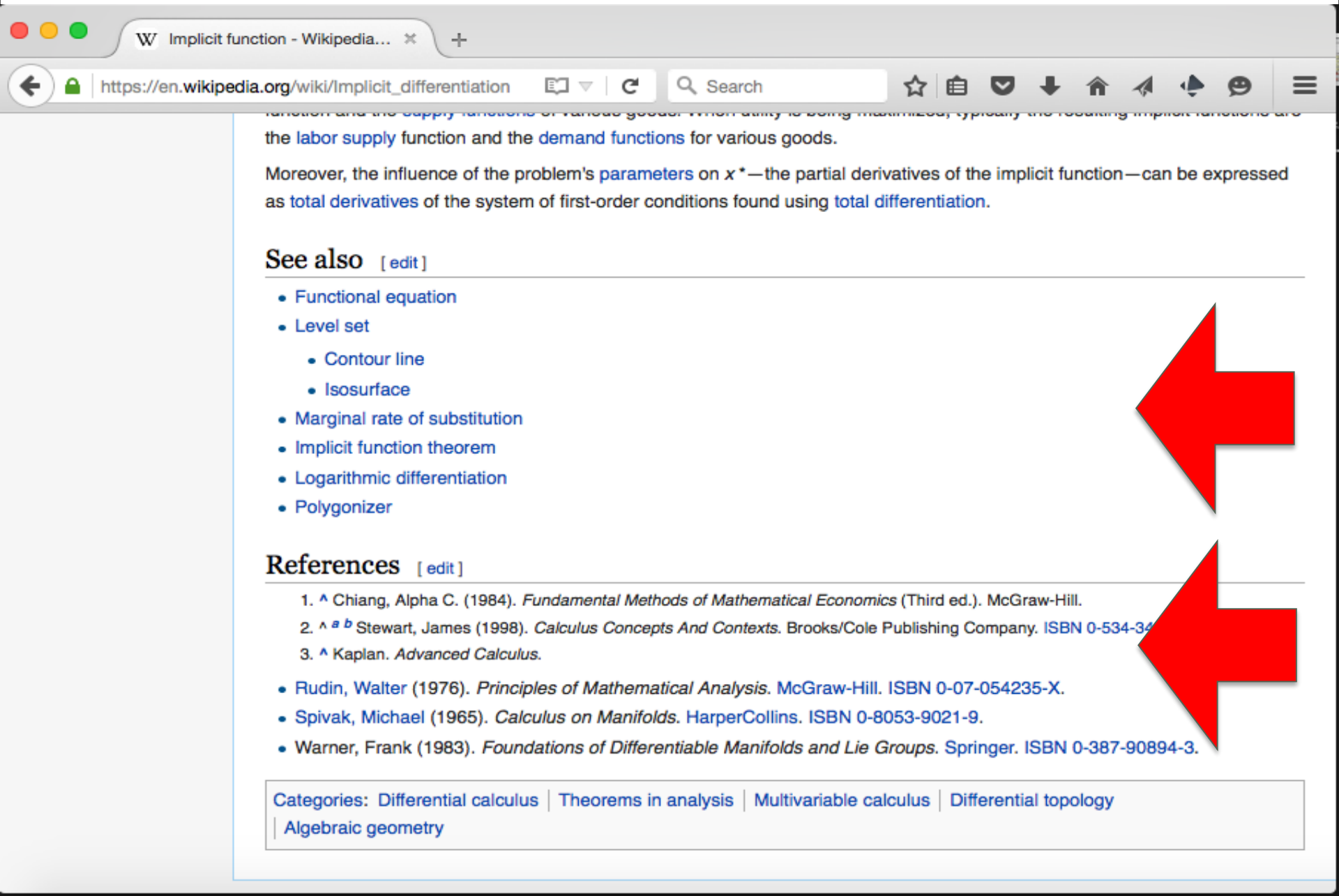
Reserve Slides

(about Wikipedia)

Wikipedia: Implicit Differentiation - Top



Wikipedia: Implicit Differentiation - Bottom



the labor supply function and the demand functions for various goods.

Moreover, the influence of the problem's parameters on x^*—the partial derivatives of the implicit function—can be expressed as total derivatives of the system of first-order conditions found using total differentiation.

See also [edit]

- Functional equation
- Level set
  - Contour line
  - Isosurface
- Marginal rate of substitution
- Implicit function theorem
- Logarithmic differentiation
- Polygonizer

References [edit]

1. ^ Chiang, Alpha C. (1984). *Fundamental Methods of Mathematical Economics* (Third ed.). McGraw-Hill.
2. ^ [a] [b] Stewart, James (1998). *Calculus Concepts And Contexts*. Brooks/Cole Publishing Company. ISBN 0-534-34
3. ^ Kaplan. *Advanced Calculus*.

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Categories: Differential calculus | Theorems in analysis | Multivariable calculus | Differential topology | Algebraic geometry

Wikipedia: Potassium 1

Potassium - Wikipedia, the f... | New Tab | New Tab

https://en.wikipedia.org/wiki/Potassium

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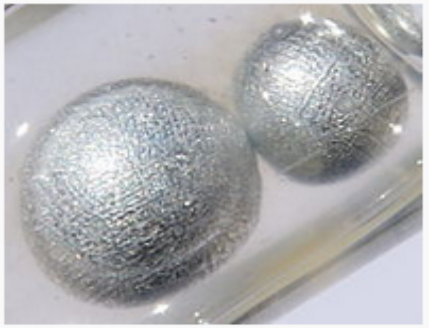
Potassium

From Wikipedia, the free encyclopedia

Potassium is a chemical element with symbol **K** (derived from Neo-Latin, kalium) and atomic number 19. It was first isolated from potash, the ashes of plants, from which its name is derived. In the Periodic table, potassium is one of seven elements in column (group) 1 (alkali metals): they all have a single valence electron in their outer electron shell, which they readily give up to create an atom with a positive charge - a cation, and combine with anions to form salts. Potassium in nature occurs only in ionic salts. Elemental potassium is a soft silvery-white alkali metal that oxidizes rapidly in air and reacts vigorously with water, generating sufficient heat to ignite hydrogen emitted in the reaction and burning with a lilac flame. It is found dissolved in sea water (which is 0.04% potassium by weight[4][5]), and is part of many minerals. Naturally occurring potassium is composed of three isotopes, one of which, ^{40}K, is radioactive. Traces of ^{40}K are found in all potassium, and it is the most common radioisotope in the human body.

Potassium is chemically very similar to sodium, which is also in column 1 of the Periodic table, and is in row 3, adjacent to potassium in row 4. They have a similar ionization energy, which allows for each atom to

Potassium, $_{19}K$



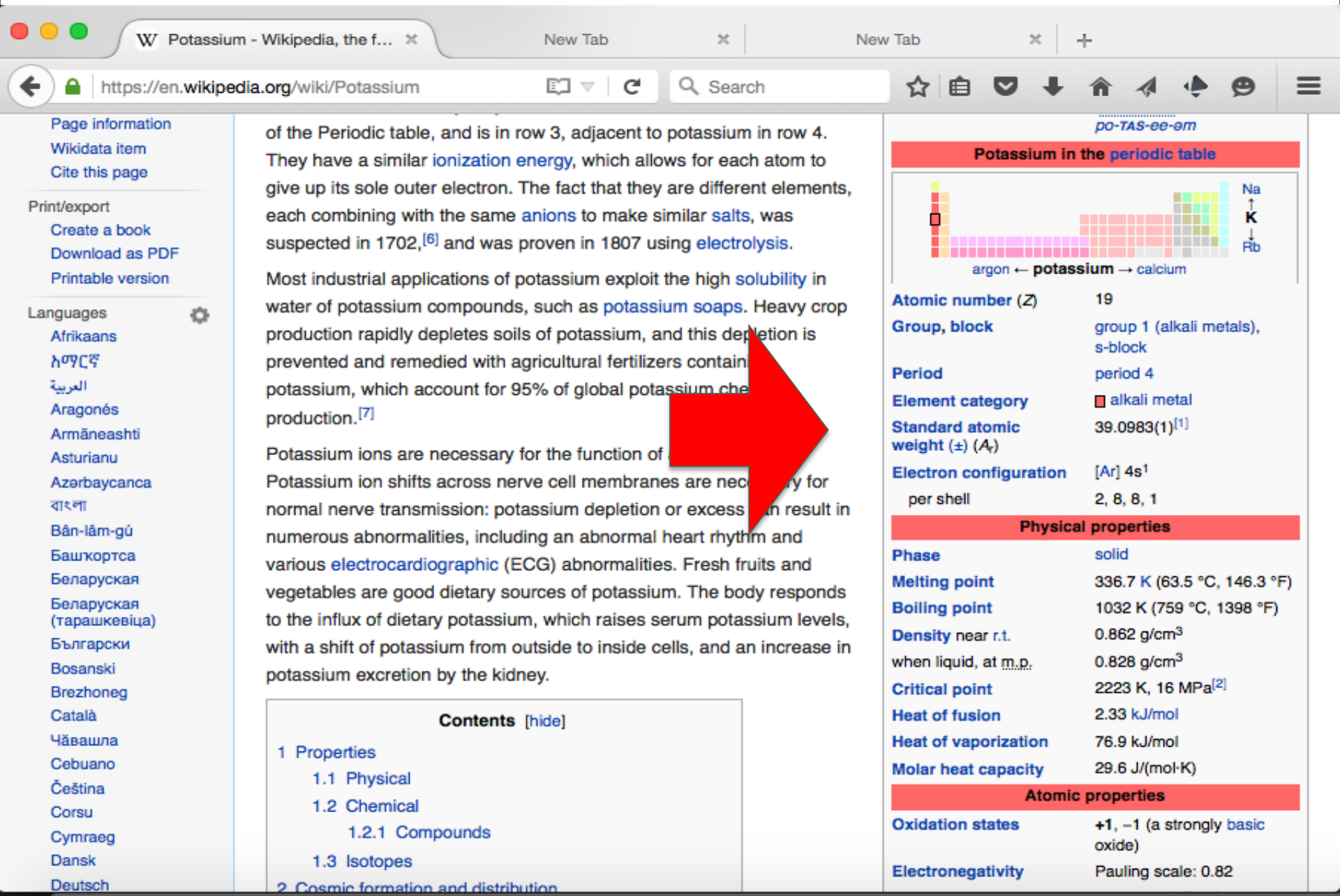
Potassium pearls under paraffin oil. The large pearl measures 0.5 cm.

Spectral lines of potassium

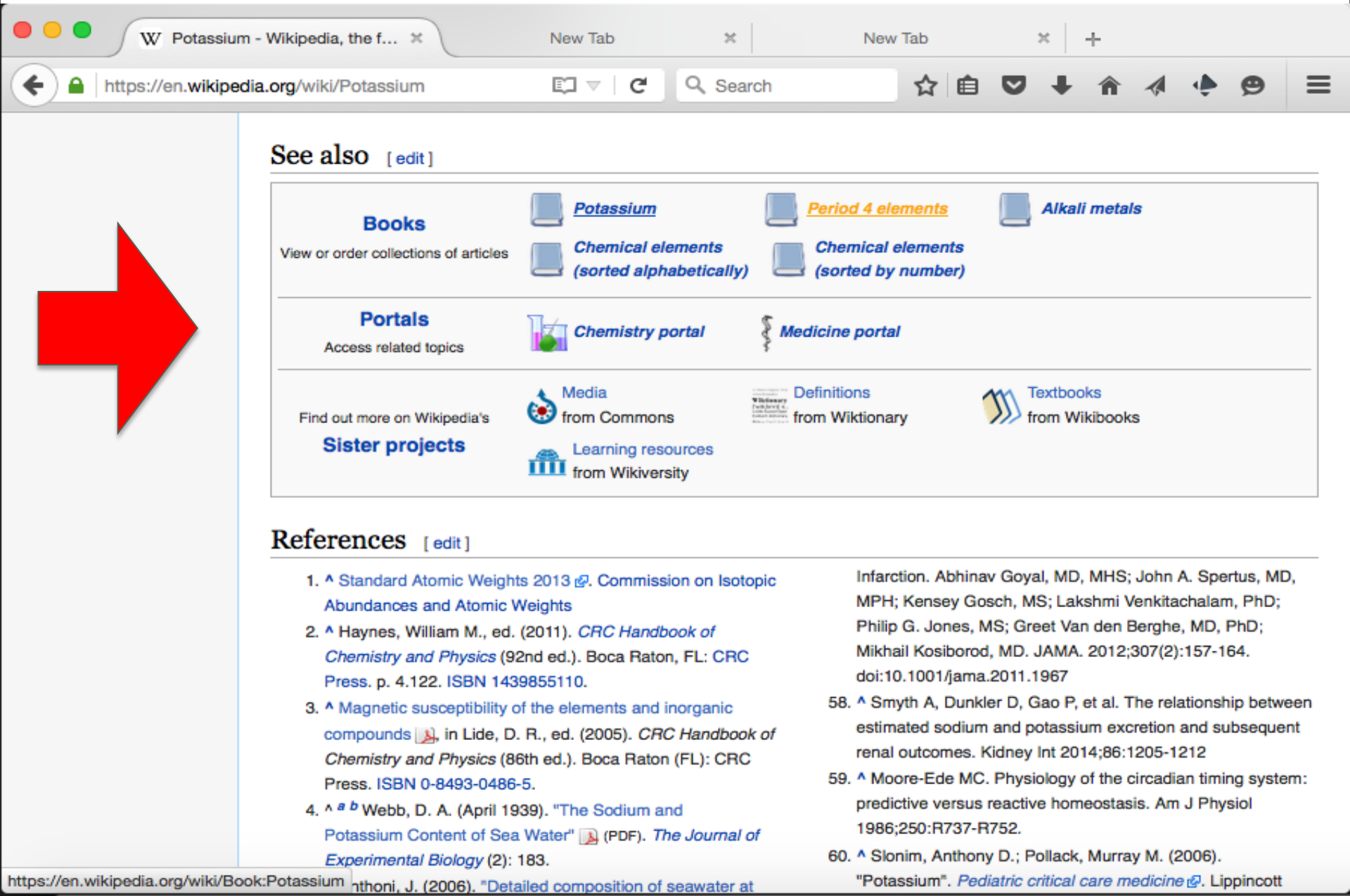
General properties	
Name, symbol	potassium, K
Appearance	silvery gray
Pronunciation	/pəˈtæsiəm/ *po-TAS-ee-əm*

Potassium in the periodic table

Wikipedia: Potassium 2



Wikipedia: Potassium - 3



Reserve Slides

(this is just a reserve...)

Final conclusions

Don’t invent.
Look for de facto standards and best practices

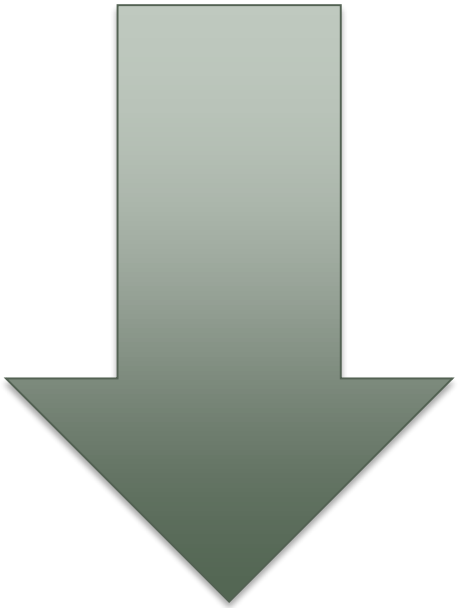
Look for the simple things that work.

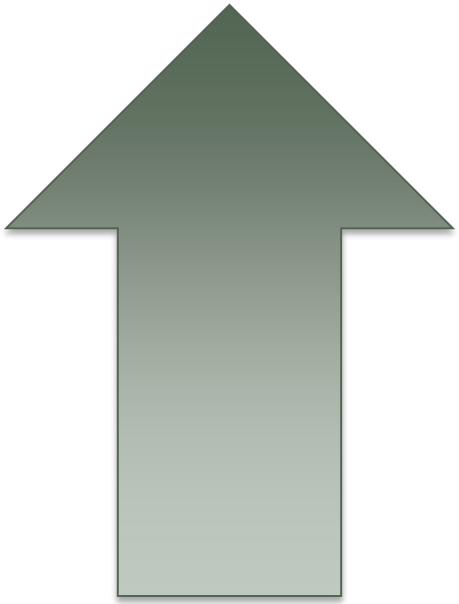
Look for unexpected gains and new combinations

Think about didactics.

Use of open source learning content

Top Down

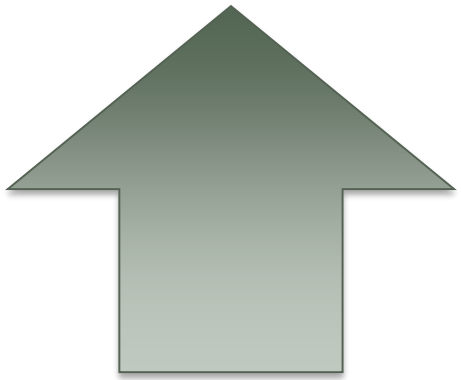




Bottom Up

Results of the analysis – bottom up

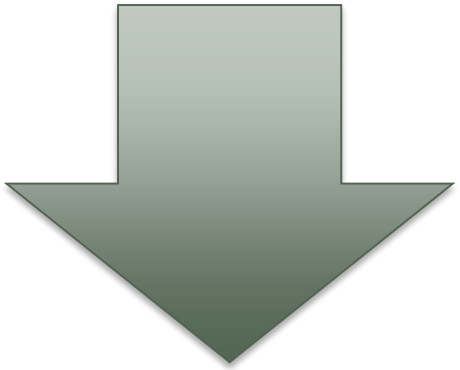
Up



Bottom

Results of the analysis – top down

Top



Down