

E-learning in higher education: how to use it effectively?

Experiences from the University of Rijeka
Croatia



University of Rijeka

- ▶ **Teaching and Learning in the Digital Age – students, teachers and learning environment**
- ▶ **E-learning – methodology, institutional support, support from the environment**
- ▶ **My e-course – how to plan, organize, manage and perform online**



Part I

Teaching and Learning in the Digital Age

– students, teachers and learning environment



4 Learning in the Digital Age

Today's digital kids think of information and communications technology (ICT) as something akin to oxygen: they expect it, it's what they breathe, and it's how they live; they use ICT to meet, play, date, and learn; it is an integral part of their social life; it is how they acknowledge each other and form their personal identities.

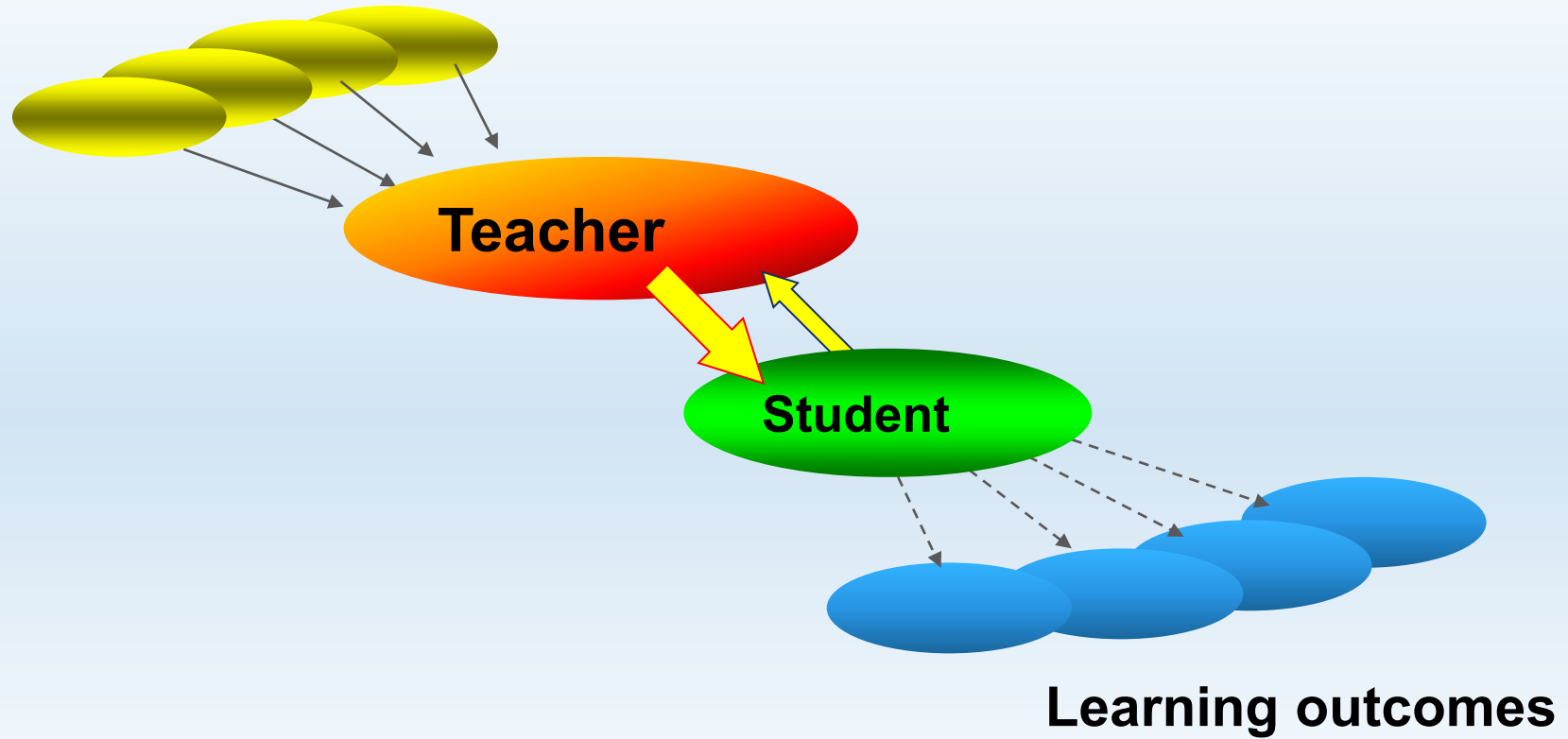
John Seely Brown

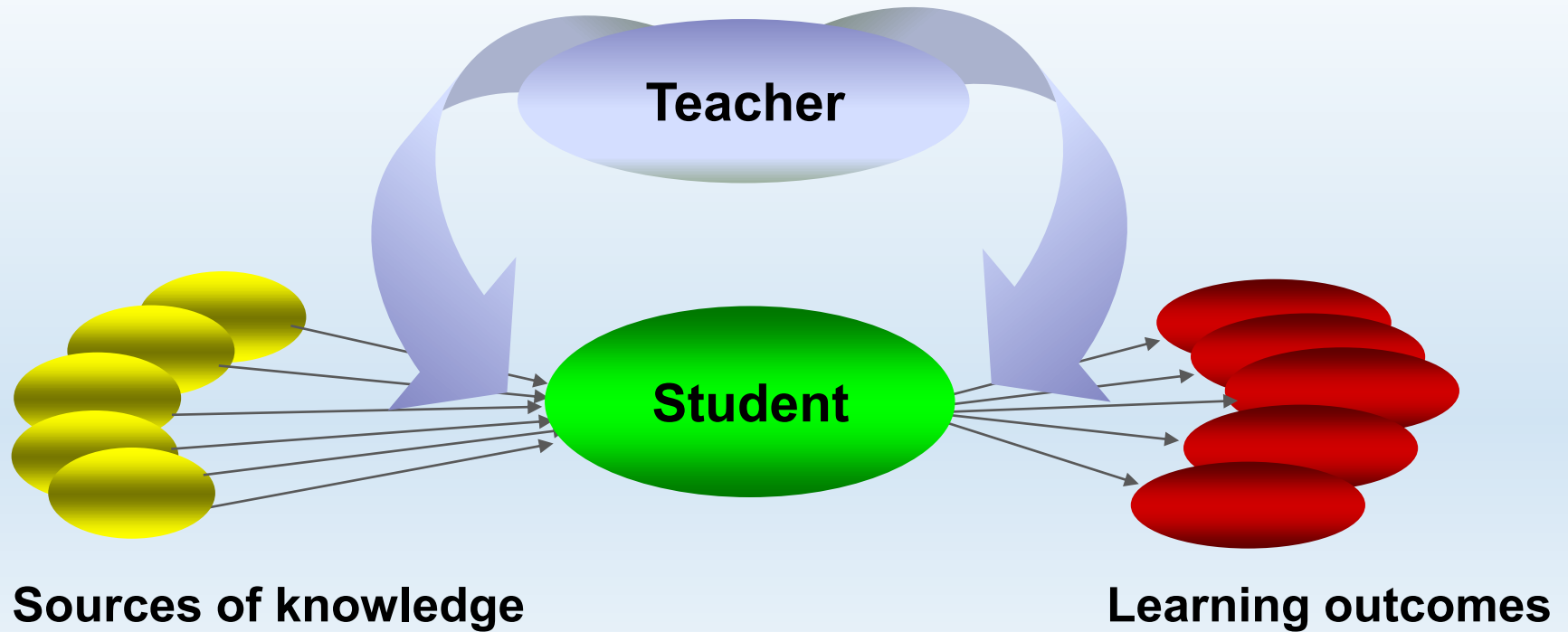




Laurentius de Voltolina (1350.), *Staatliche Museen Berlin*

Sources of knowledge





8 T&L and Learning environment

Once upon a time...

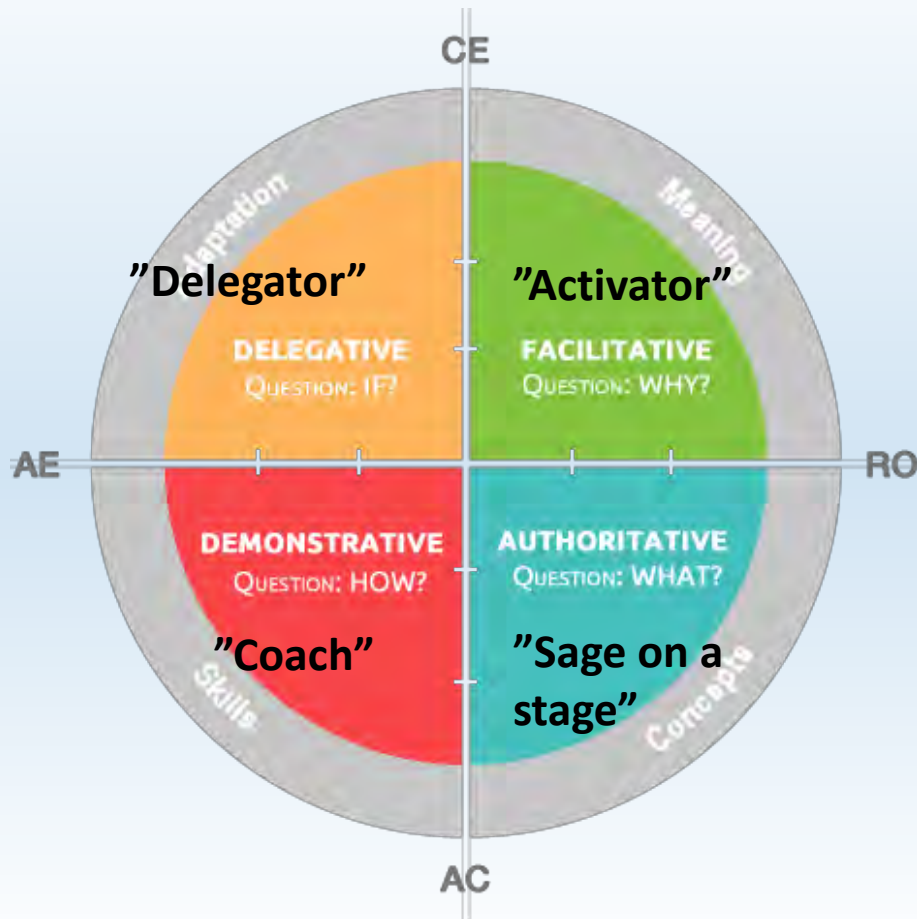
- ▶ 1 competence/skill– 1 teacher
- ▶ Simple learning environment
- ▶ Not flexible
- ▶ Learning
 - By oneself
 - Sequential
 - Slow
 - Using reading and writing
 - ...

Today...

- ▶ 1 competence/skill– # teachers
- ▶ Complex learning environment
- ▶ Flexible
- ▶ Learning
 - Collaborative
 - Parallel
 - Quick
 - Supported by digital technology
 - ...



9 Teaching and learning styles



10 Matching T&L styles?



As we start a new school year, Mr. Smith, I just want you to know that I'm an *abstract-sequential learner* and trust you'll conduct yourself accordingly...



It is called *reading*. It is how people install new software into their brains.



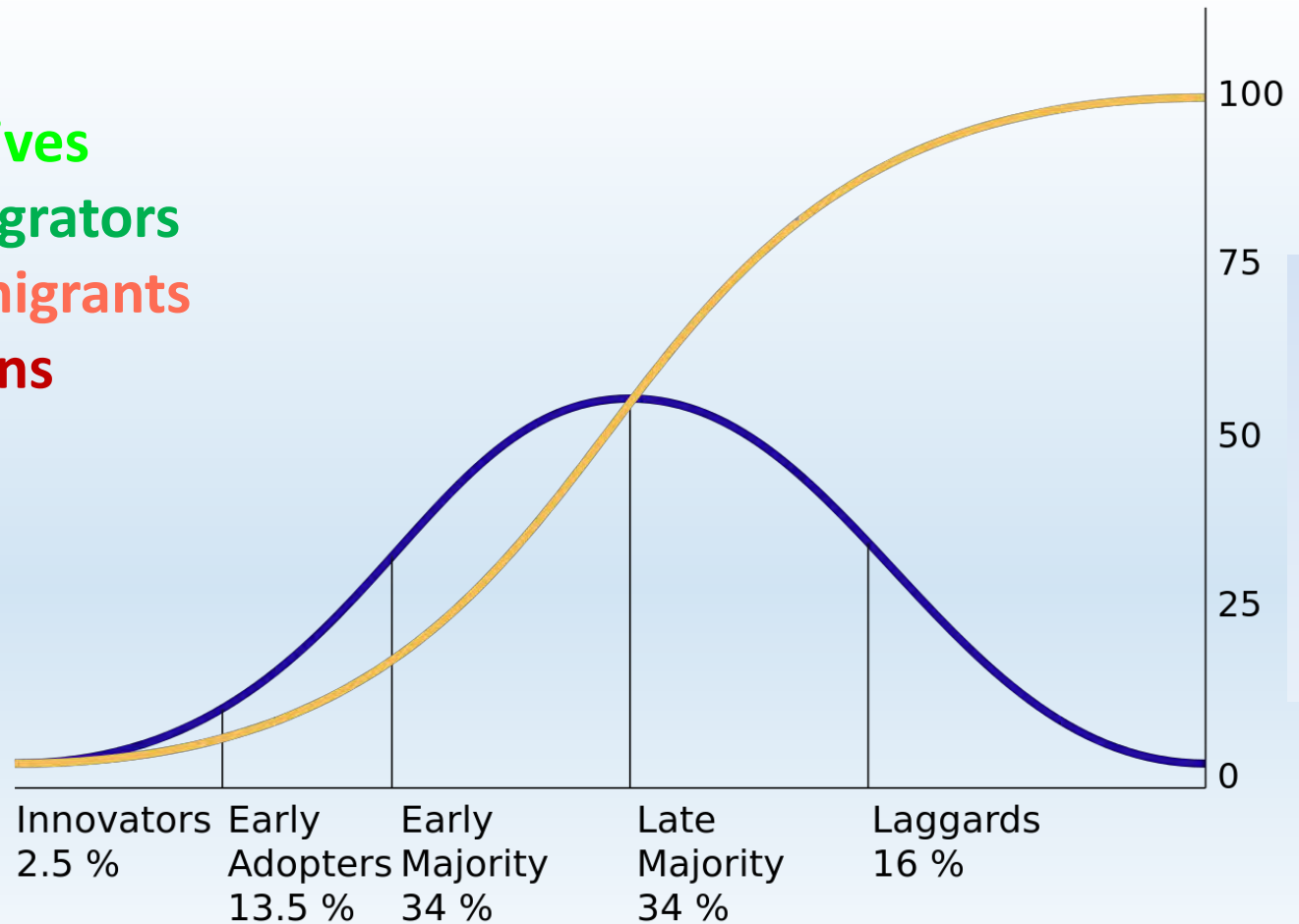
11 Matching T&L styles is a MYTH

- ▶ Learning: the brain learns in many ways at once; we don't have one dominant learning style
- ▶ Teaching: we tend to teach the subject in a way which resembles our own learning style and according to our best learning experiences
- ▶ There is no evidence that the change of teaching style to match different learning styles helps students to achieve better results.
- ▶ There is no "faster" or "better" learning as learning outcome.
- ▶ Teachers should be aware of the student's background, interests and motivation for learning.



12 Digital divide

- Digital Natives
- Digital Integrators
- Digital Immigrants
- Digital Aliens



<http://www.socialmediatoday.com/content/are-you-digital-alien-digital-immigrant-or-digital-native-marketing-digital-who>

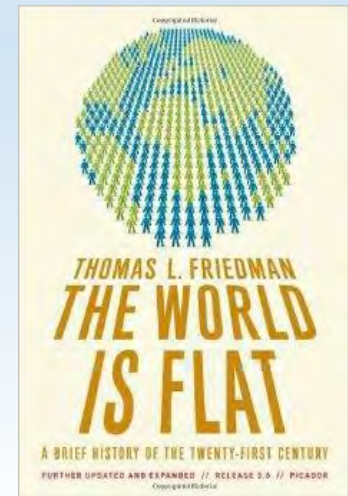


13 Digital natives - Millennials – Generation Y / Z

- ▶ They are **intuitive learners** rather than linear (do not use or easily relate to manuals)
- ▶ They **learn via participation** rather than passively (Wikipedia vs. Britannica)
- ▶ Their brains have developed a **high capacity to multitask** and to **rapidly task-switch** (hopping).
- ▶ They **see the world less hierarchical** - the Internet levels the playing field, making everyone more equal online (*T.L. Friedman: The World Is Flat*)



Marc Prensky



14 Lessons learned

- ▶ Learning happens in a multitude of ways; the success in achieving learning outcomes depends mostly on student's background, interests and motivation!



- ▶ Create teaching methods that are based on the motivational characteristics of students
- ▶ Be ready to adapt and to change methods and teaching strategies, so as to activate more senses
- ▶ Do it (at least partly) ONLINE!



Part II

E-learning

– methodology, institutional support, support from the environment



16 E-learning

▶ Technical definition

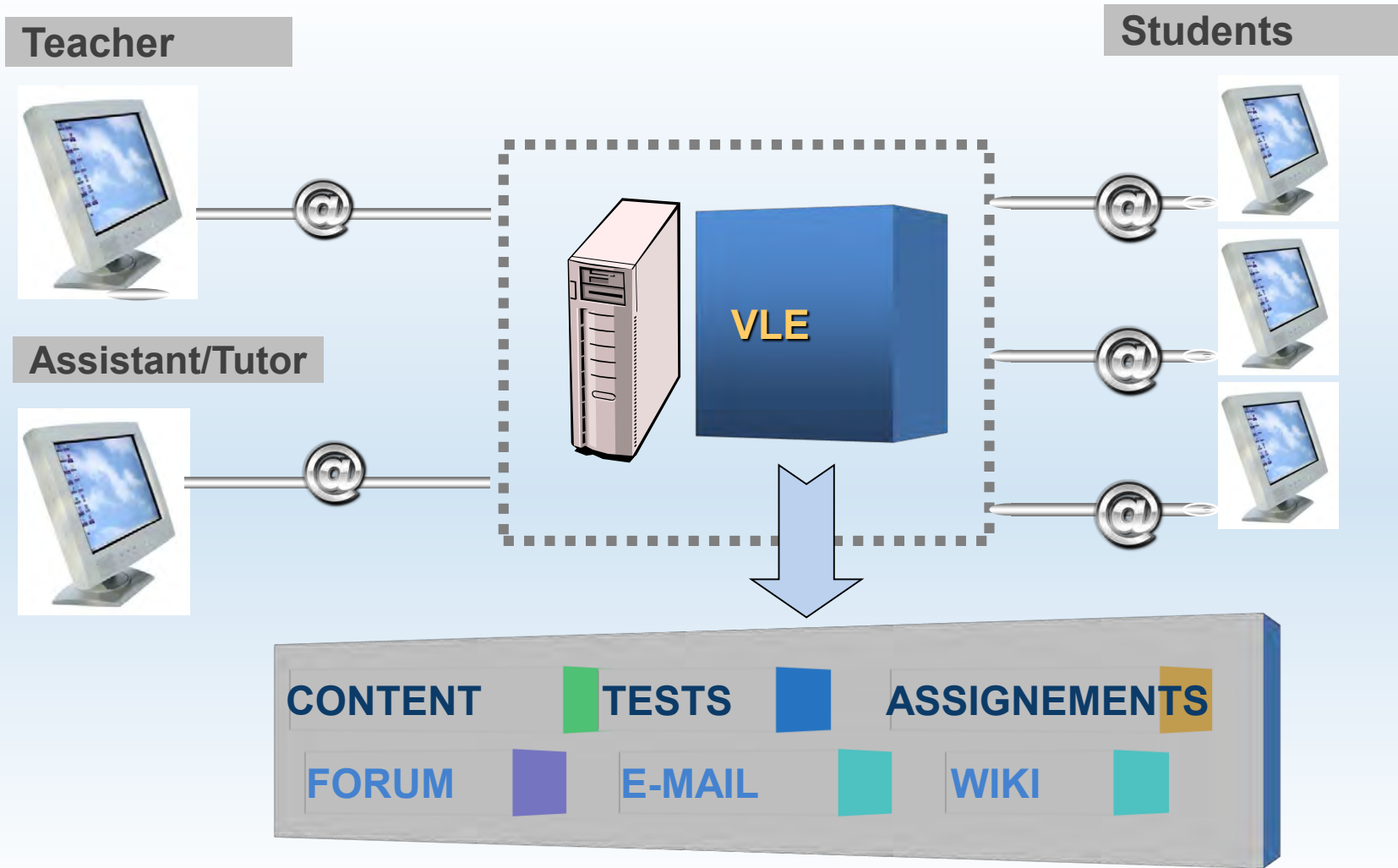
E-learning is any form of learning, teaching or education that is supported by the use of digital technology, particularly Internet technologies.

▶ Pedagogical definition

E-learning is interactive or two-way process between teachers and students supported by digital technology; emphasis is on the learning process while the technology is only a tool that complements the process.



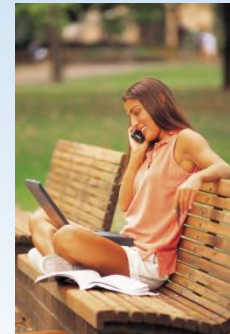
17 E-learning technology



18 Pro's



- ▶ integrated learning materials available 24/7
- ▶ learning and teaching student oriented
- ▶ enhanced communication
- ▶ spatial and temporal flexibility
- ▶ interactivity
- ▶ virtual experiments
- ▶ self-assessment tests
- ▶ reduction of the number of class hours
- ▶ improving information literacy
- ▶ global work group, global teachers



19 Con's



- ▶ preparation of educational materials:
 - time consuming
 - requires nontrivial skills - editing text and images, graphic design, use of multimedia, ...
- ▶ reduced social contacts
- ▶ a strong self-discipline
- ▶ high level of motivation
- ▶ possible technical problems
 - connecting to the network
 - entering the VLE
 - download or upload problems
 - ...

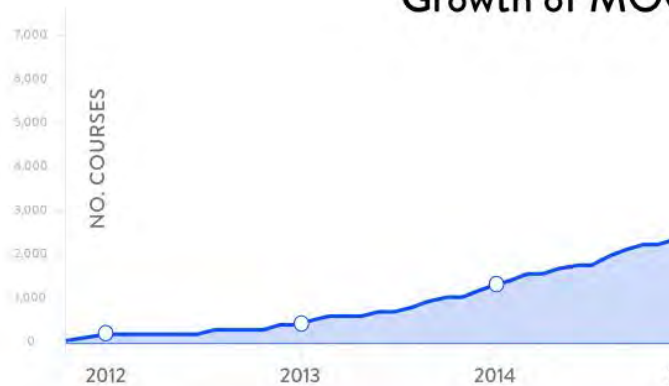


20 MOOCs (Massive Open Online Courses)

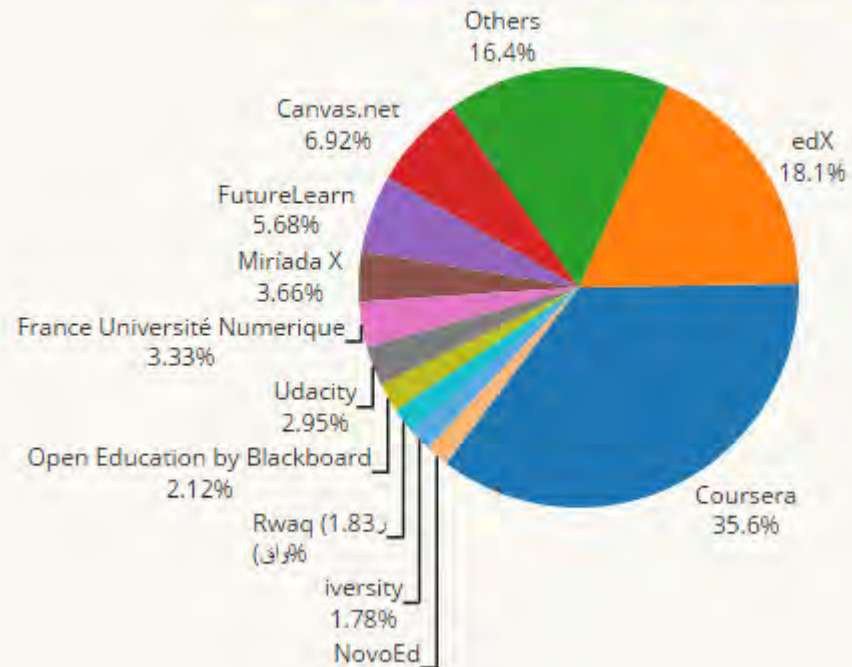
2016: 700+ Universities, 6850 Courses, 58 M Students

<https://www.class-central.com/report/moocs-2015-stats/>

Growth of MOOCs



Course Distribution by Providers



RICOUNT <http://ricount.uniri.hr/>





First and primarily, **an excellent e-teacher is an excellent teacher.** They like dealing with learners; they have sufficient knowledge of their subject domain; they can convey enthusiasm both for the subject and for their task as a learning motivator; and they are equipped with a pedagogical understanding of the learning process, and have a set of learning activities at their disposal by which to orchestrate, motivate, and assess effective learning.

Terry Anderson



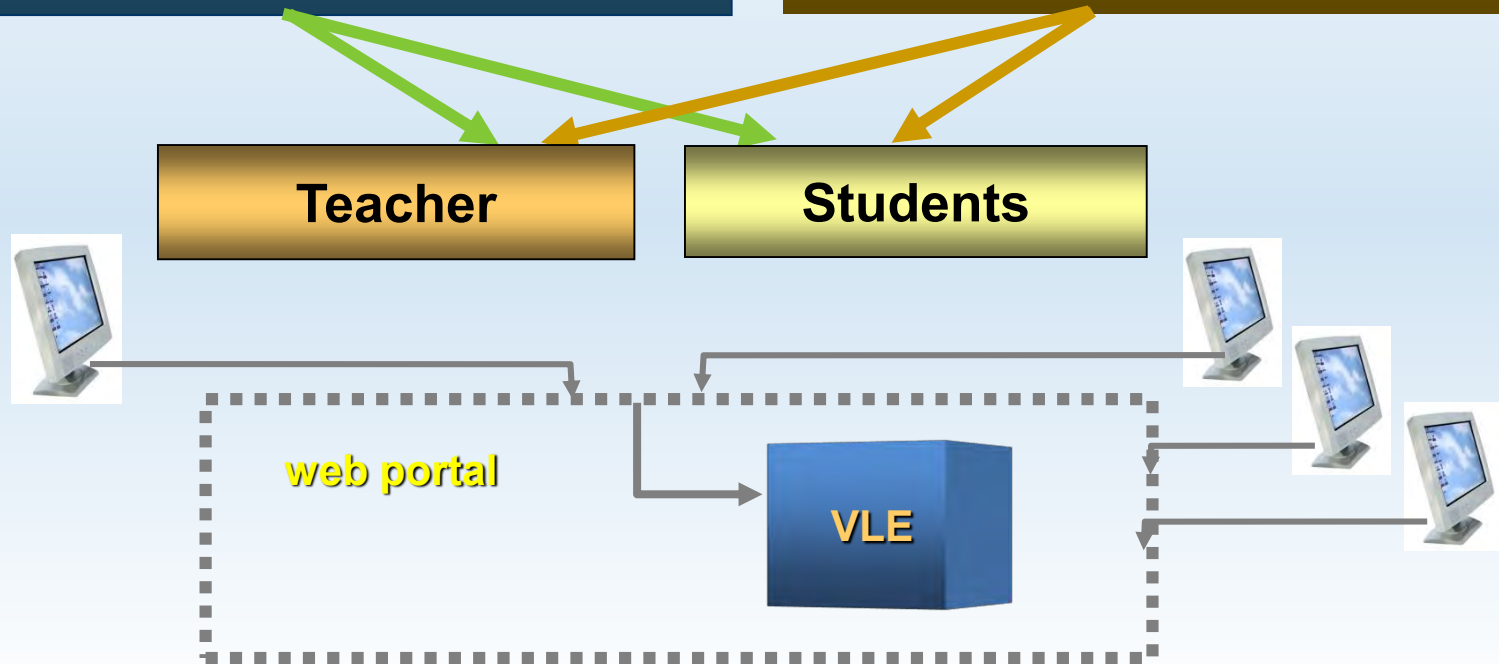
23 Support

DigTech SUPPORT

- ✦ maintenance and administration of VLE
- ✦ access to DT tools
- ✦ helpdesk
- ✦ creation of MM content
- ✦ ...

EDUATIONAL SUPPORT

- ✦ educational programs for DT use
- ✦ content development
- ✦ implementation of educational innovation
- ✦ ...



24 Institutional support

- ▶ Technical support available to students and teachers at all times
- ▶ Educational and developmental support to teachers and co-workers
- ▶ The new regulation of the teaching workload
- ▶ Stimulation and help in the development of educational materials
- ▶ Monitoring and motivational support to students
- ▶ Quality control

University of Rijeka e-learning support

- Supporting documents (strategy #1- implementation, strategy #2 - development, Action plans, Books of rules, ...)
- E-learning network
- Technical, educational and developmental support
- Quality control



25 What our students value the most?

- ▶ availability of learning materials / resources
- ▶ organization, completeness and design of materials
- ▶ online availability of teachers
- ▶ timely feedback
- ▶ self-assessment tests implemented

M.Zuvic-Butorac, Z. Nebić, D. Nemčanin, T. Mikac, P. Lučin: Establishing an Institutional Framework for an E-learning Implementation – Experiences from the University of Rijeka, Croatia, *Journal of Information Technology Education* (2011), 10: IIP 043-056., <http://www.jite.org/documents/Vol10/JITEv10IIPp043-056Zuvic946.pdf>

M. Žuvić-Butorac , N. Rončević, D. Nemčanin, Z. Nebić : Blended E-Learning in Higher Education: Research on Students' Perspective, *Issues in Informing Science and Information Technology* (2011), 8:409-429. <http://iisit.org/Vol8/IISITv8p409-429Zuvic247.pdf>



- ▶ E-learning can improve the quality of teaching and learning, but only if it is structured in a functionally and pedagogically meaningful way.
- ▶ The full functionality of e-learning can be developed only with the institutional support.
- ▶ Technology can never replace a good teacher, but it can help.

Part III

My e-course

– how to plan, organize, manage and perform online



28 The first step - answer questions!

1. What is the objective of the e-course?
2. What resources do I have?
3. Who are my students and what I want them to achieve?
4. How to organize an e-course?



1. What is the objective?



- **Why** do I **want** to have an e-course?
- What are **my expectations** from the e-course?
- Can **my teaching** be **improved** by opening an e-course?
- What parts of my current teaching I may **amend, replace or innovate** by implementing an e-course?

30 2. What resources do I have?

- **Technical requirements:** platform (availability, technical support, ease of use, ...); computer at work/home? Internet access?
- **Time:** Do I have enough time (in the preparational period / during the course of teaching)?
- **Existing materials:** Do I already have digital learning materials?
- **Human resources:** roles required to deliver e-course? (professor, assistant, etc.); how many people I can count on? are they digitally competent?



3. Who are my students and what I want them to achieve?



- **Target group:** How many students do I have? Who are my students? (experience of studying, experience of e-learning, digital competences, etc.). What students expect? What is their environment?
- **Learning outcomes:** What are the learning outcomes for the course? What competencies should be developed?
- **Specifics areas:** What is the complexity and difficulty of the content? Are the learning outcomes knowledge or skills oriented?

32 4. How will I organize my e-course? (1)

1. Contents

- How to structure the course (thematic/timeline)? Opening of the content (successively/always opened)?
- What types of content will be offered? In what digital format?



33 4. How will I organize my e-course? (2)

2. Methods

- Which **teaching methods** to achieve the learning outcomes?
 - Presentation of materials (lecture materials, references, videos, multimedia, links...)
 - Interactive methods (self-assessment quizz?)
 - Collaborative methods (group work, peer review, etc.)
- What types of **activities** to support learning?
 - Homework - individual (thematic, weekly, periodically)
 - More complex tasks - problem-solving - individual / group
 - Term papers
 - Discussions on the forums - the rules!
 - Feedback - individual / group / all students



34 4. How will I organize my e-course? (3)



3. Assessment:

What will be assessed in an e-course? How will the final grade be structured? What are the criteria for the assessment of activities (feedback)? Self-assessment tests? Test items database?

4. Quality control:

Student's evaluation of e-Course and teachers? Continuous evaluation / periodic / final?



35 The second step – PLAN!

► Plan of **content**:

How to organize content? (thematic/timeline)

What kind of teaching materials will be offered/
in what format? (presentations, text materials, e-
books, MM materials)

The type and quantity of supplementary materials?
(additional literature, video, simulation ...)

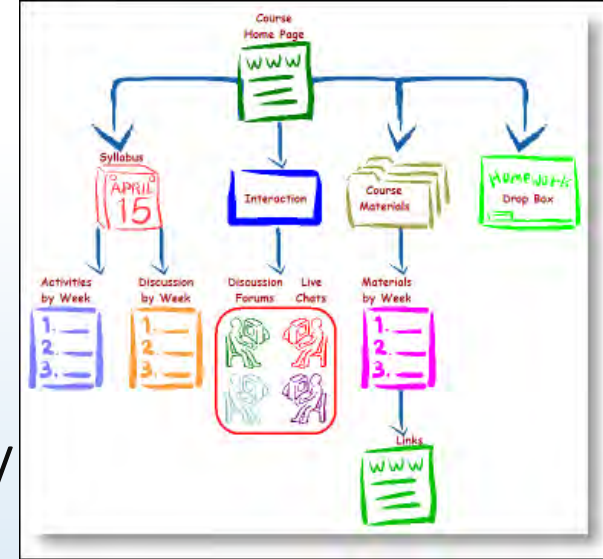
► Plan of **activities**:

What kinds of activities will be offered to students?

What will be the obligations? Which rules will be applied?

Criteria for the evaluation of student activities?

Organization of assessment?



36 The second step – PLAN!

► **Communications plan:**

What types of alerts will appear on News Board?

Post the communication rules!

situations for the individual communication
netiquette

Provide the communication channel - to solve
technical problems, to get learning support

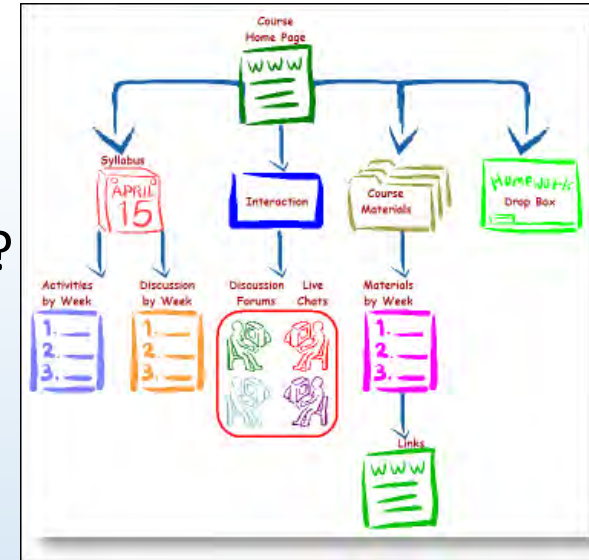
► **Plan of course administration:**

How will students enroll to the course?

What available tools for administering am I going to use?

Organization of evaluation list in the e-course?

How the final score will be structured?



37 Summary

Content

Presentations
Educational materials
Additional literature Links

Activities

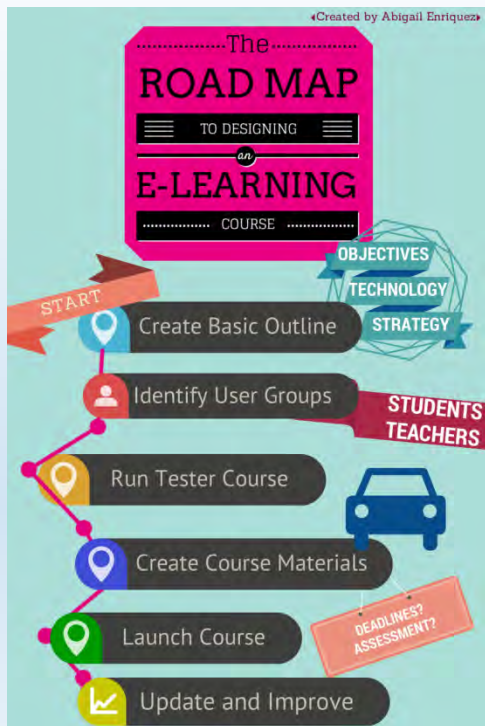
Submission tasks (homeworks, seminar papers...)
Forum – discussions
Group work
Peer review

Communication

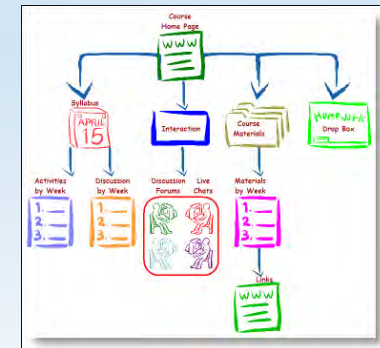
Notice Board
Internal e-mail
Forums

Course administration

Enrollement
Assesments and follow-up
Grades
Statistics



PLAN!



38 Lessons learned



- ▶ Plan, plan, plan...
- ▶ Design, structure and organization of e-Course should be completed before the course starts!
- ▶ All the "*rules of the game*" in the course must be known before the start of classes!
- ▶ Activities must be structured in advance and schedule of activities should be defined for the entire period of instruction!
- ▶ Do not change the appearance and structure of the e-course in progress!

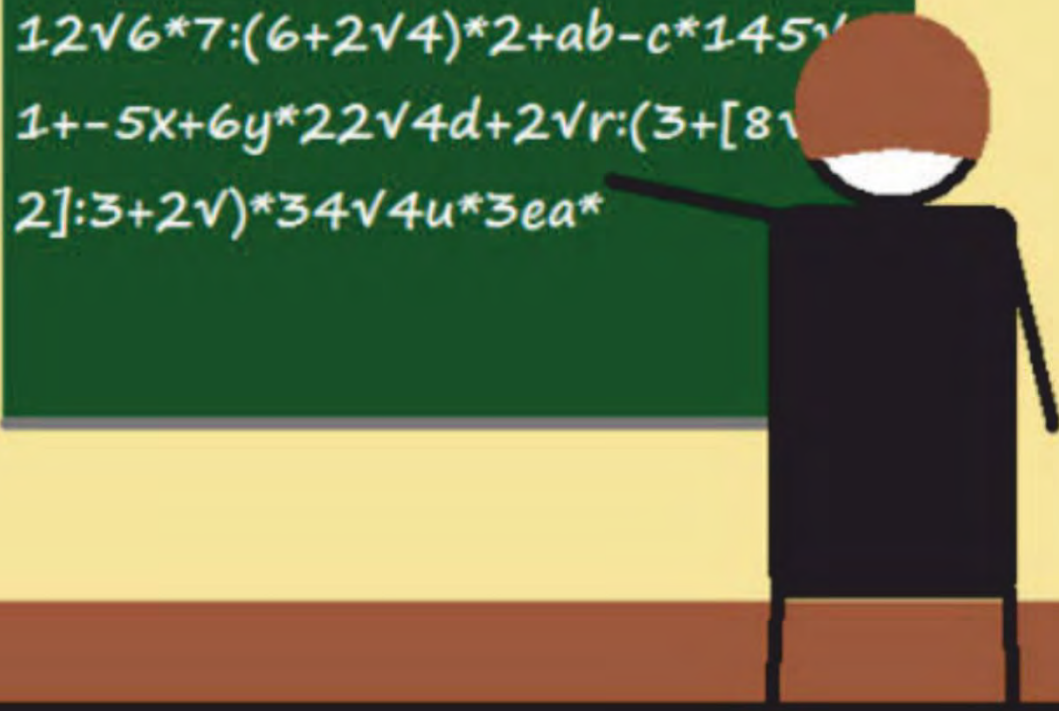


39 Example

▶ <http://mudri.uniri.hr>

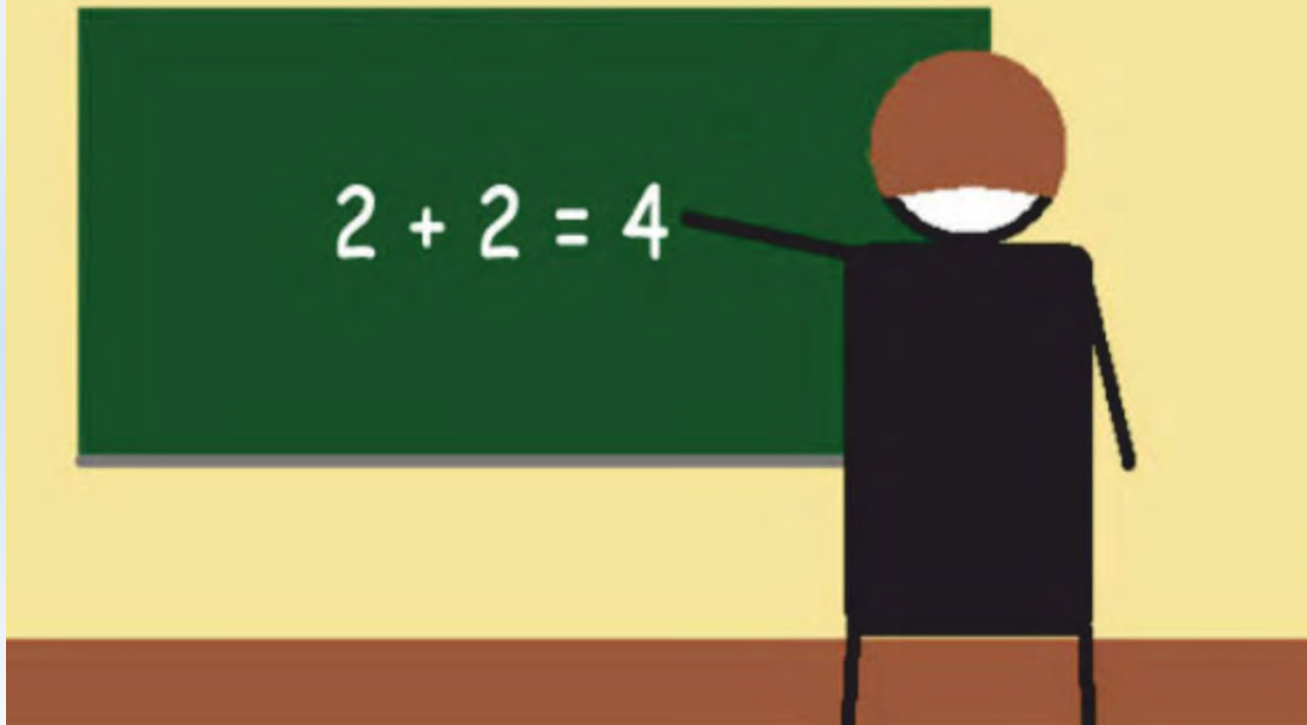


What's on the blackboard



$12\sqrt{6} * 7 : (6 + 2\sqrt{4}) * 2 + ab - c * 145\sqrt{1}$
 $1 + -5x + 6y * 22\sqrt{4}d + 2\sqrt{r} : (3 + [8\sqrt{1}$
 $2] : 3 + 2\sqrt{v}) * 34\sqrt{4}u * 3ea *$

What the teacher is seeing



What the students are seeing

而不是鍵入一個美好的譯員
胡說我有一個夢想，夢想雞巴
話'的事情在衣櫃裡，他媽的媽
備到有經驗的獵人阿哈小姪



What the students remember



What's gonna be on the test

$548b \cdot 644a / [\sqrt{854} \cdot (684c - 123) / 7^{75ix} + \sqrt{48y}] - \log(\frac{7}{1}f)47+z / \sqrt{342} \cdot 4av -$
 $-\sqrt{\sqrt{6+h742} - [gh782\sqrt{4} + \log(\sqrt{4231})6874 / (\sqrt{42 - (54+63)} - 42 \cdot 63)}]$
 $\cdot a - n)7X] / (a+b)2a^2+2ab+b^2+\sin 2a - 2\sin a \cdot \cos a \cdot \sin(a+\beta) + \sin$
 $+ \cos \beta \cdot \cos a \cdot \sin \beta / [\cos(a+\beta) - \cos a \cdot \cos \beta - \sin a \cdot \sin \beta] + \sin(90^\circ + a)$
 $-\cos(90^\circ + a) + 6544 \cdot 524 / 521 - 61321113258 + 53215 / \log(64865$
 $/ \operatorname{tg}(43,6894^\circ + a) \cdot 8,65423158ab - xyz \cdot 3yX - \sin(300^\circ + a) + e^{-54x}$
 $p(p-a) + (p-b) / (p-c) - Ob \cdot a + 0,564684531b + c + d + \pi \cdot 3 - 5 + 65,6$
 $\cdot (2+2 \cdot 2) / \log(8+65321,314716\pi) - \sqrt{3,1415926535897932}$
 $4626433832 / 2ab \log(2bc) / \sqrt{2ac} \cdot \pi r l - 476,842887a \cdot c - b / 6$
 $+ (64852!) - (\sqrt{\pi 5421!}) \cdot \operatorname{ctg}(360^\circ + a) - ef + 24185,874564321:$
 $\operatorname{ctg}(28421,6584^\circ + a) - 5648 \cdot 23158 + \sqrt{65acg} - (\sqrt{asg-d/u/p/c}$



What the cleaning lady is seeing





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