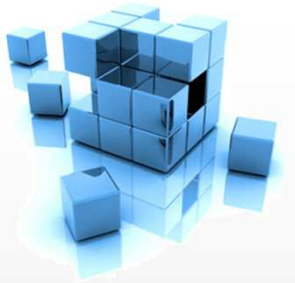
UF UNIVERSITY of FLORIDA



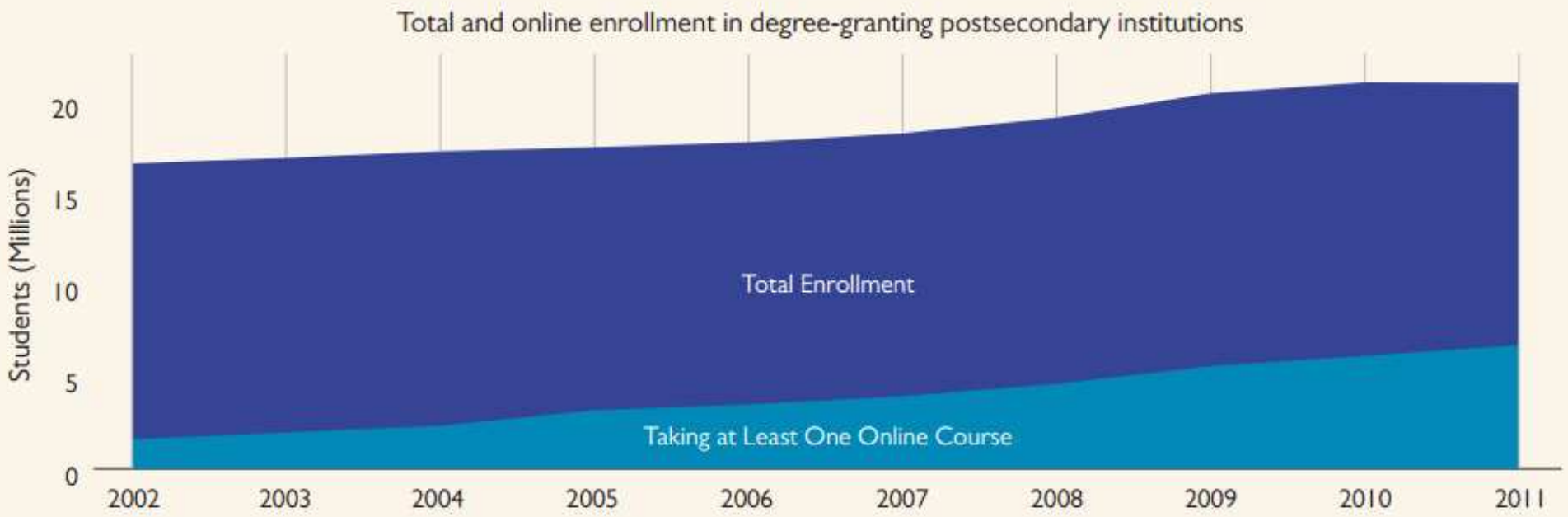
Distance Education in Soil, Agricultural and Environmental Sciences – Successes, Challenges, and Potentials

Sabine Grunwald
sabgru@ufl.edu

10 years of Tracking Online Education in the U.S. (Sloan Consortium, Pearson and Babson Survey Research Group):

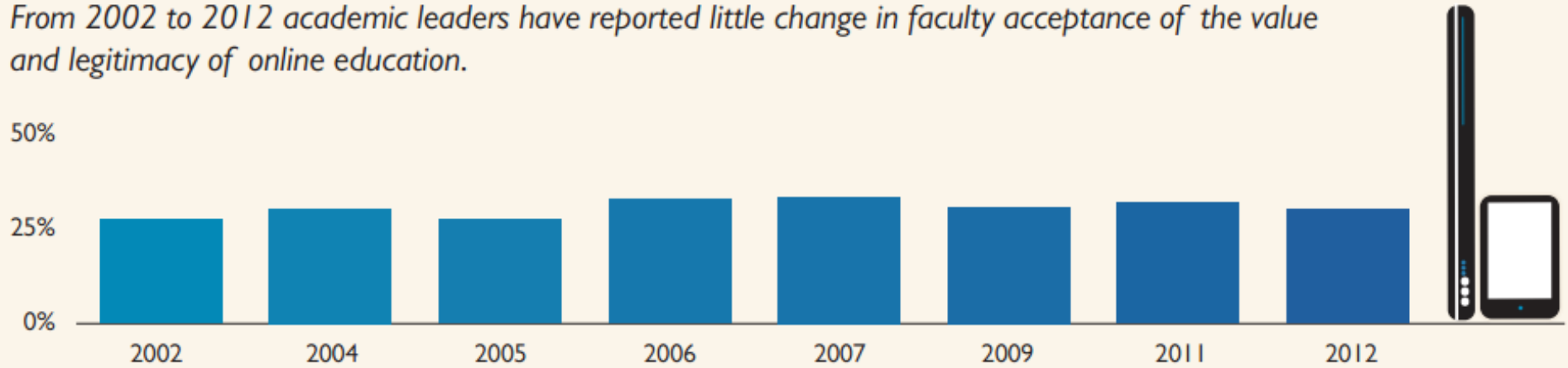
- Over 6.7 million students were taking at least one online course (2011)
- Only 2.6% of higher educ. institutions have a Massive Open Online Course
- 77% of academic leaders rate the learning outcomes in online education as the same or superior to those in F2F classes
- 69.1% of academic leaders say that online learning is critical to their long-term strategy

How many students are learning online?



Faculty acceptance of online education and the barriers to wide-spread adoption

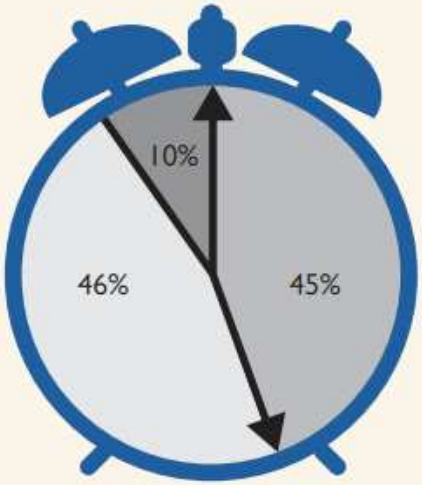
From 2002 to 2012 academic leaders have reported little change in faculty acceptance of the value and legitimacy of online education.



http://www.pearsonlearningsolutions.com/assets/downloads/reports/changing-course-survey.pdf

Does it take more faculty time and effort to teach online?

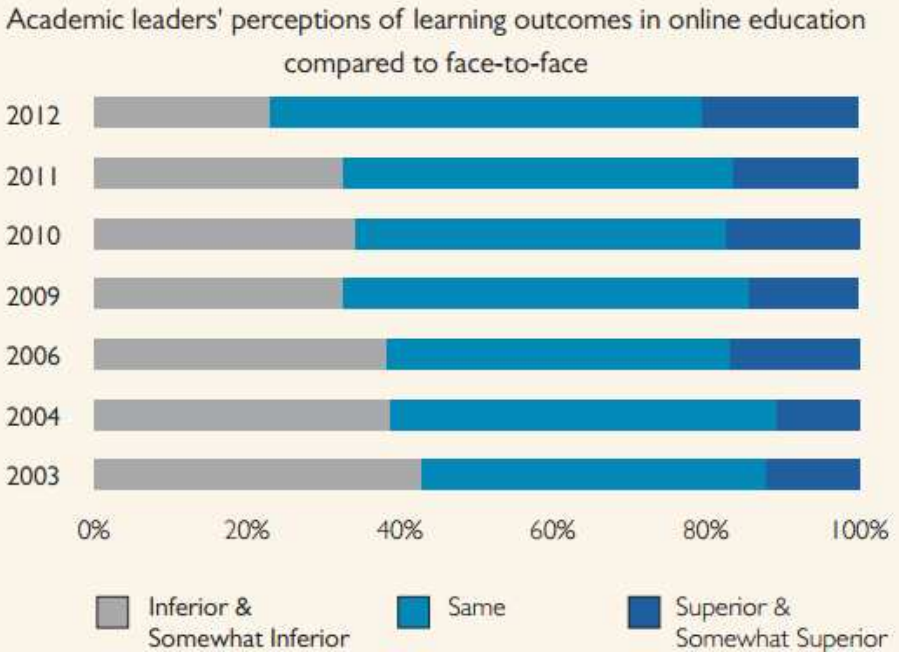
45% of CAOs agree that it takes more faculty time and effort to teach an online course than a face-to-face course



Agree Neutral Disagree

Are student learning outcomes comparable?

Of academic leaders surveyed reported online learning outcomes to be the same, somewhat superior or superior to face-to-face in 2012.



http://www.pearsonlearningsolutions.com/assets/downloads/reports/changing-course-survey.pdf

Distance Education in Brazil (Survey by the National Institute of Studies and Educational Surveys):

- 15% of all universities use DE
- Most Brazilian students that benefit from DE are from emerging middle class
- Preferred majors: Pedagogy, business admin., and social services

Closed vs. Open Education

- Open-source knowledge-ware development (tools)
- Open-source courseware development (content)

From Globalisation to Glocalisation

- Localization of online education is context specific
- Cultural, language, digital divide and other barriers

Distance Education Programs, Soil and Water Science Department - University of Florida

Undergraduate Program:
Environmental Management in Agriculture and Natural Resources (EMANR)

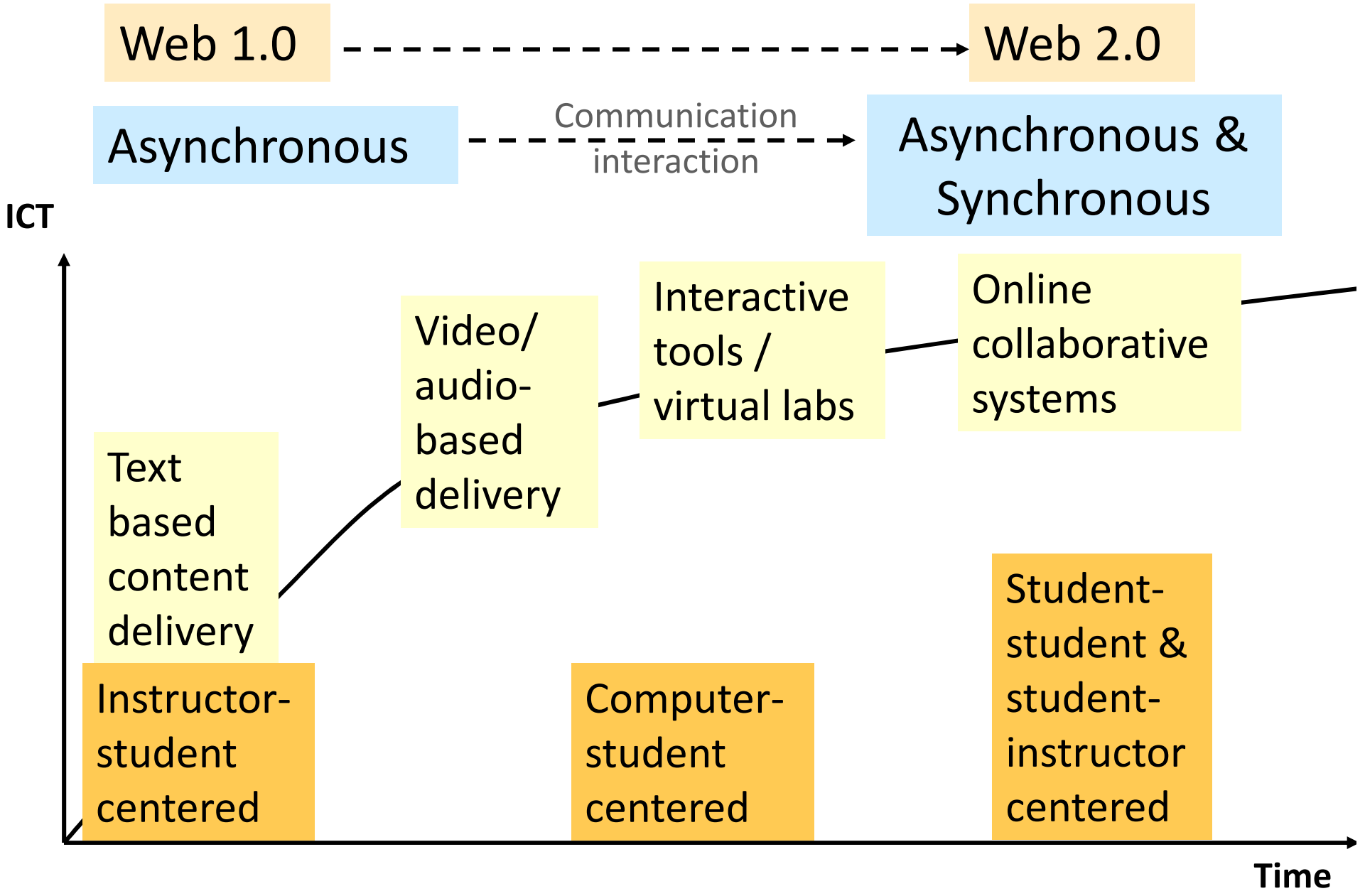
Graduate Program (thesis and non-thesis M.S.):
Environmental Science

Graduate Certificate Programs:
- Sustainable Land Resource and Nutrient Management
- Wetland and Water Resource Management
- Soil Ecosystem Services

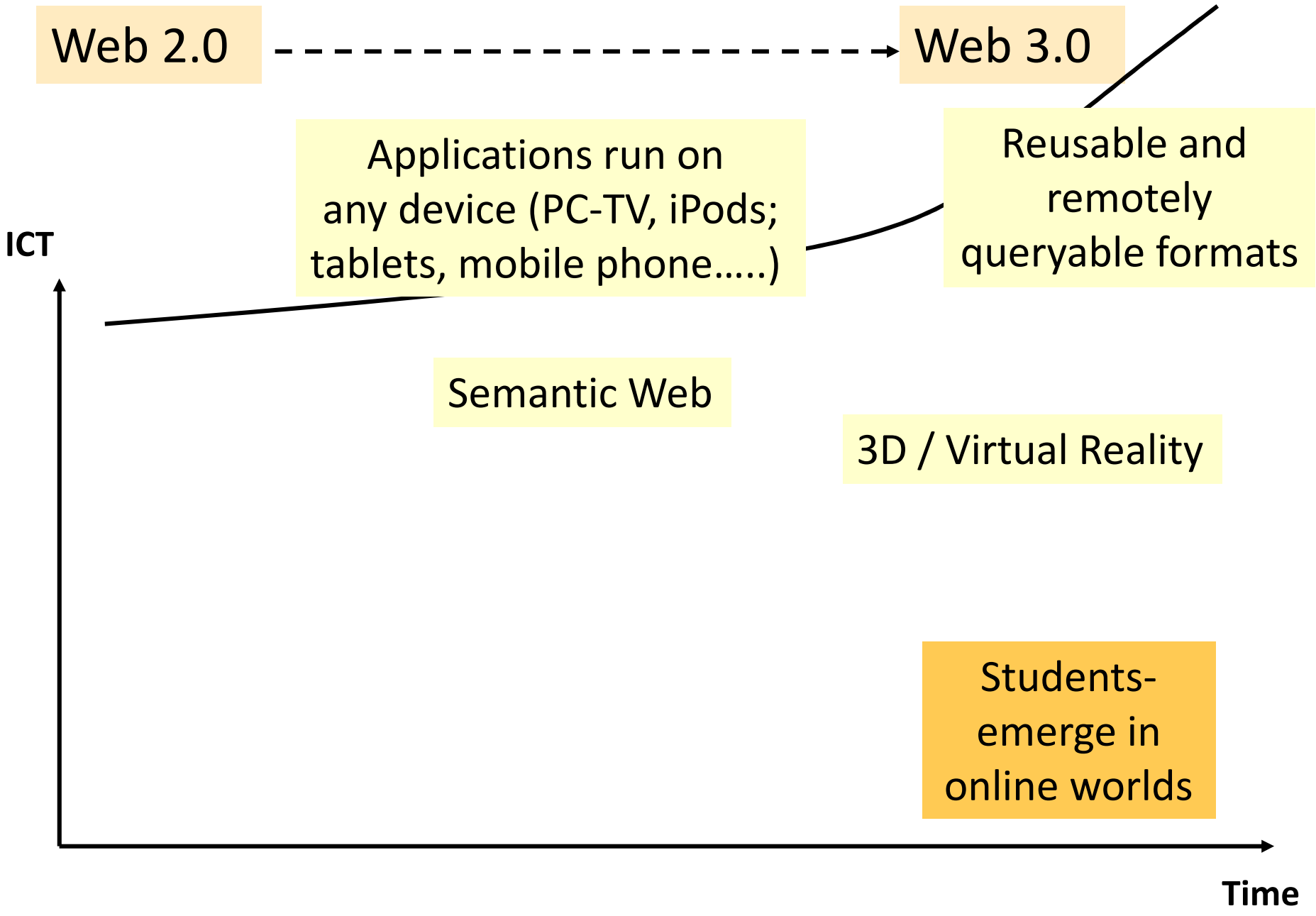
Values of Learning:

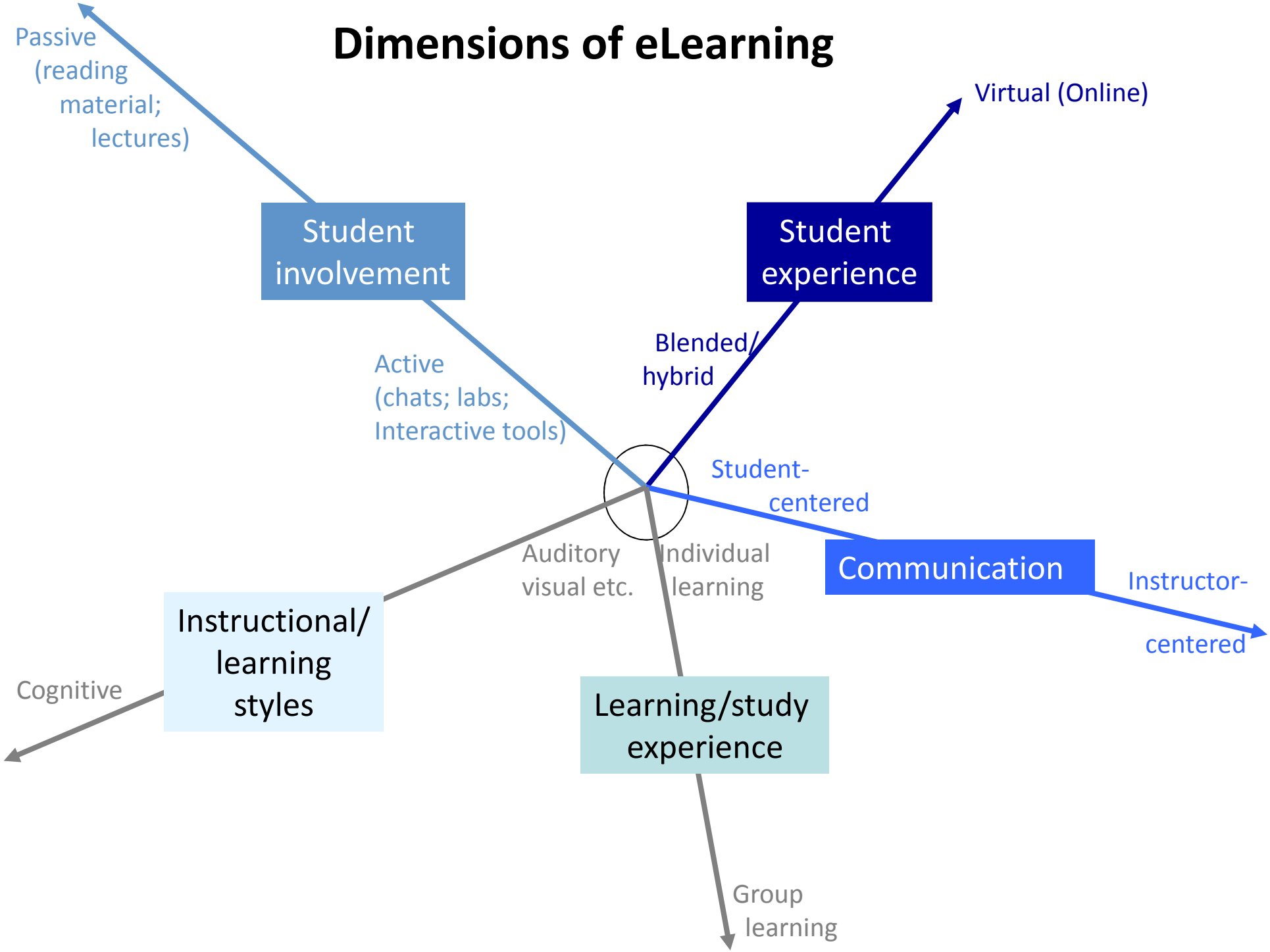
- Develop understanding and personal meaning
- Develop competence through mastery of skills and processes
- Develop the learner's ability to articulate and share their knowledge
- Enable the learner to transfer learning from one context to another in authentic life situations

Trends - e-Delivery Methods

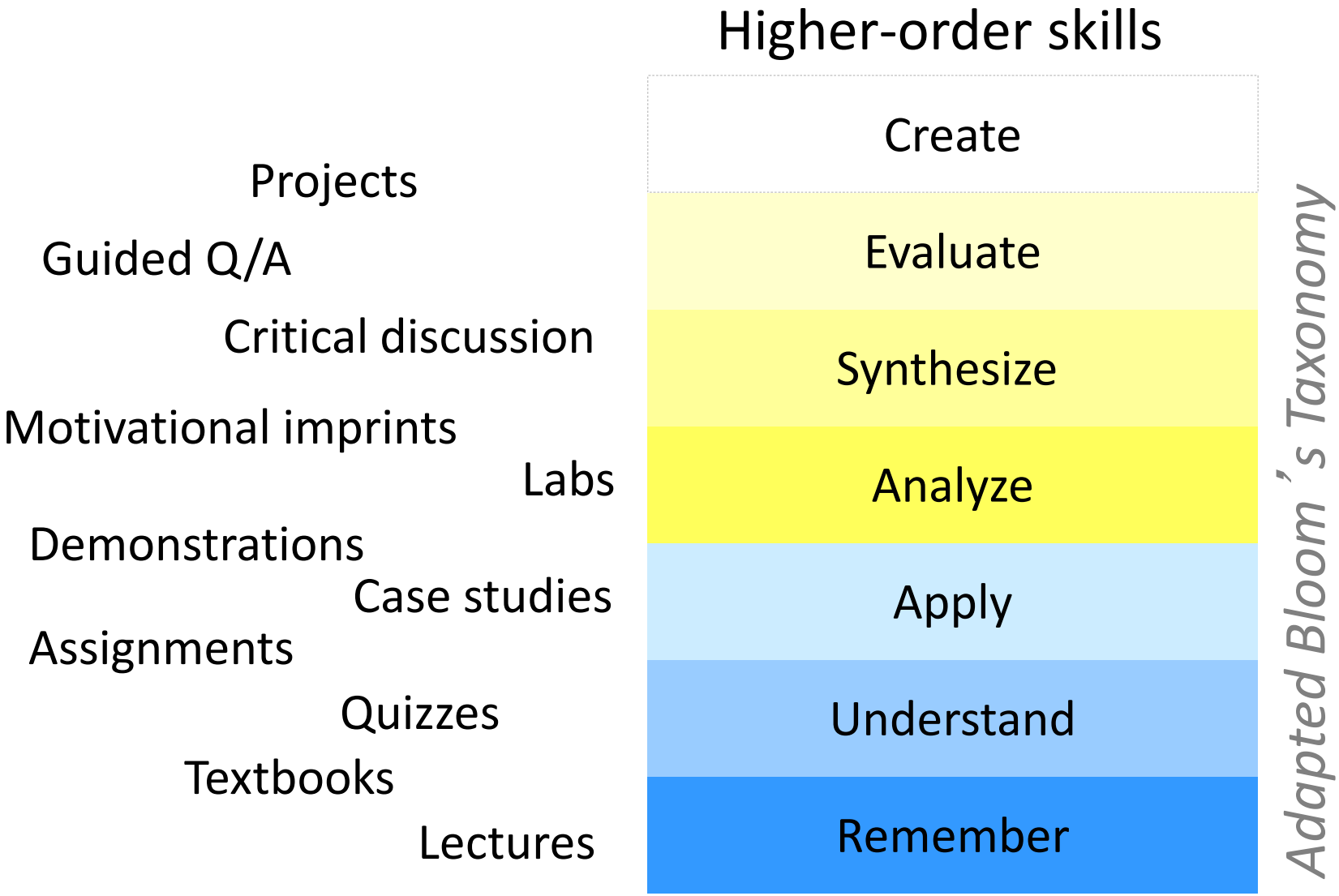


Trends - e-Delivery Methods




Dimensions of eLearning
Passive (reading material; lectures)
Student involvement
Active (chats; labs; Interactive tools)
Virtual (Online)
Student experience
Blended/ hybrid
Student-centered
Communication
Instructor-centered
Auditory visual etc.
Individual learning
Instructional/ learning styles
Cognitive
Learning/study experience
Group learning

Complexity of Learning



Bloom, 1984
Anderson and Krathwohl, 2001

Communication and Learning

- A large body of literature suggests that communication in the classroom is central to the learning process
- Both on-campus and DE students have social needs and interacting with others can improve learning outcomes

Images: Google Images

Learning

Research findings have shown that information is absorbed best when using more than one human sense

10% by reading

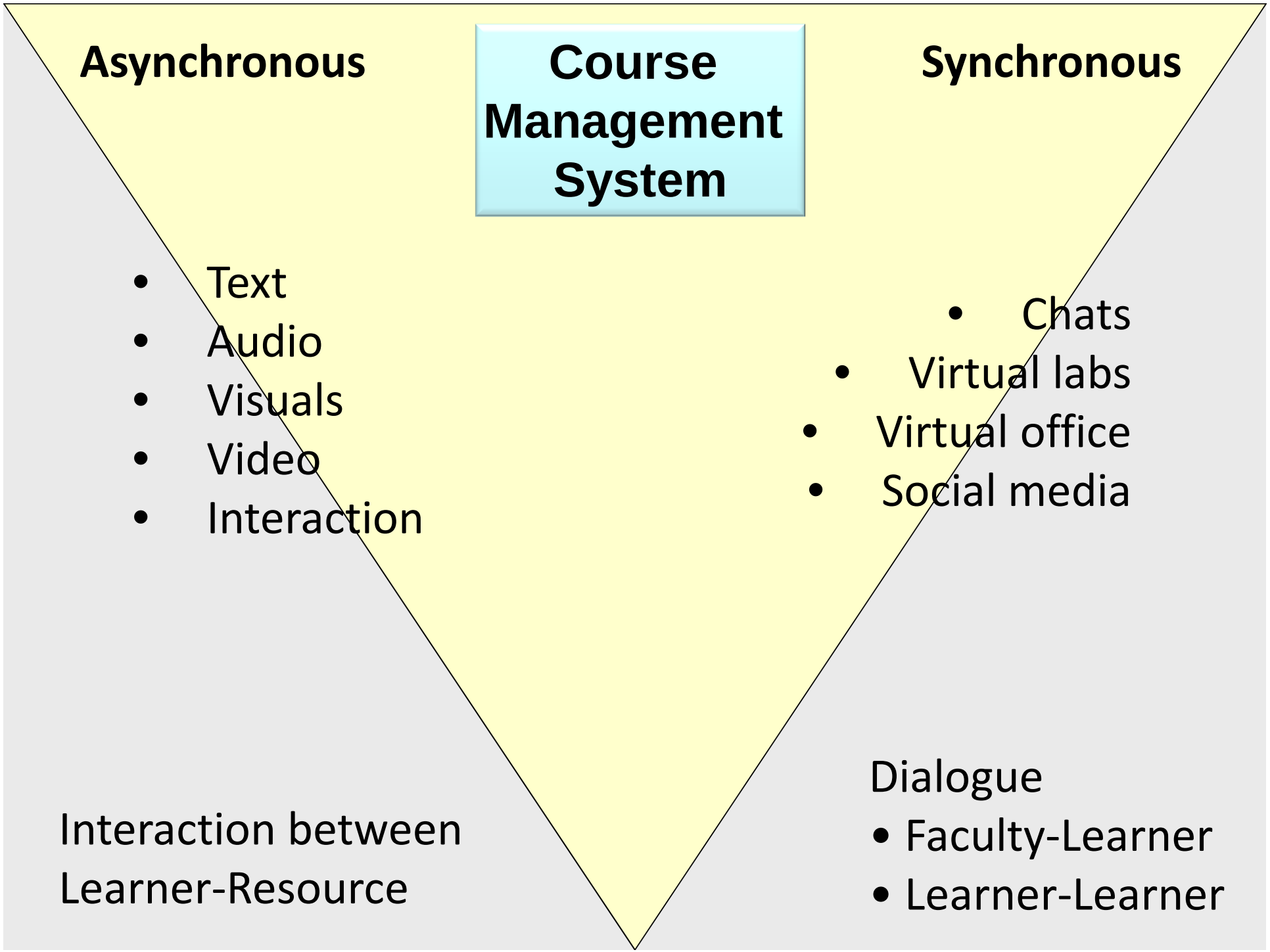
30% by reading & visuals

50% by reading, visuals & sound

80% by reading, visuals, sound & interaction

It is a combination of technologies and media that provide a learning environment rich in various forms of interaction *(interaction with content and people)*

(Stibbard, 1997; Ramasundaram et al., 2006; Grunwald et al. JEDT, 2007)


Asynchronous
Course Management System
Synchronous
Text
Audio
Visuals
Video
Interaction
Chats
Virtual labs
Virtual office
Social media
Interaction between Learner-Resource
Dialogue
Faculty-Learner
Learner-Learner

Inquiry-based Learning

"Tell me and I forget, show me and I remember, involve me and I understand."

Inquiry is not so much seeking the right answer -- because often there is none -- but rather seeking appropriate resolutions to questions and issues.

For educators, inquiry implies emphasis on the development of inquiry skills and the nurturing of inquiring attitudes or habits of mind that will enable individuals to continue the quest for knowledge throughout life.

An important outcome of inquiry should be useful knowledge about the natural and human-designed worlds. How are these worlds **organized**? How do they **change**? How do they **interrelate**? And how do we **communicate** about, within, and across these worlds?

Open inquiry

Guided inquiry

Structured inquiry

Confirmation inquiry

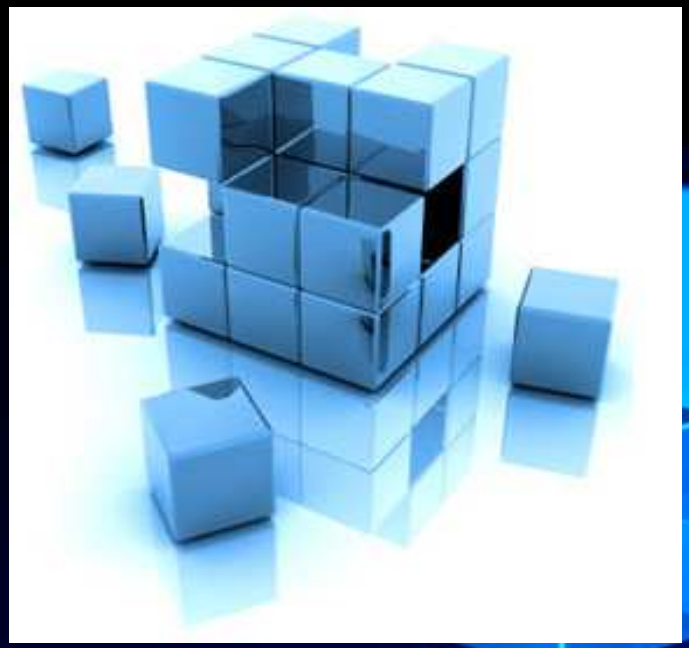
Banchi and Bell, 2008


20
40
60
80
1
20
40

Empowering of Learners

- Co-creation of learning material
- Shared learning content
- Participatory learning
- Collaborative learning setting

Reusable Learning Objects (RLOs)



An RLO is an independent and self-standing unit of learning content that is predisposed to reuse in multiple instructional context (Polsani, 2003)

Source image: Google.com Images

Characteristics – Reusable Learning Objects

(1) Digital / web-based (24/7)

(2) Reusable –

multiple context; multiple purpose; multiple times

(3) Self-contained –

specific topic / learning objective

(4) Small in size –

to focus learners attention (2-15 min.)

(5) Standardized –

RLOs follow the same organizational structure; free of look- and feel of formatting to be reused in multiple delivery media

(6) Searchable –

tagged with metadata (data that describe the RLO)

Koohang and Harman, 2007

Characteristics – Reusable Learning Objects

(7) Flexible –

easy to update; easy access to quality teaching and learning resources for a wide range of learners

(8) Aggregate –

build larger modules, courses or curricula

(9) Suited for new types of learners –

net-generation learner; learner-centered

(10) Cost-effective –

avoid duplication / redundancy of learning materials; intellectual capital

Koohang and Harman, 2007

Simplified Learning Cycle

(1) Learning Objective

(2) Knowledge/ instruction
(learning activity):

Delivery format: **+ text, map + interactive demo** **+ text + video** **+ Power Point**

(3) Assessment
(evaluation)

Barrit and Alderman, 2004

EcoLearnIT

Reusable Learning Object System

Key concepts:

- Open educational system
- Shared learning content
- Contains peer-reviewed published RLOs
- Allows to develop RLOs (authoring tools)
- In the spirit of Web 2.0 – empowers learners and instructors

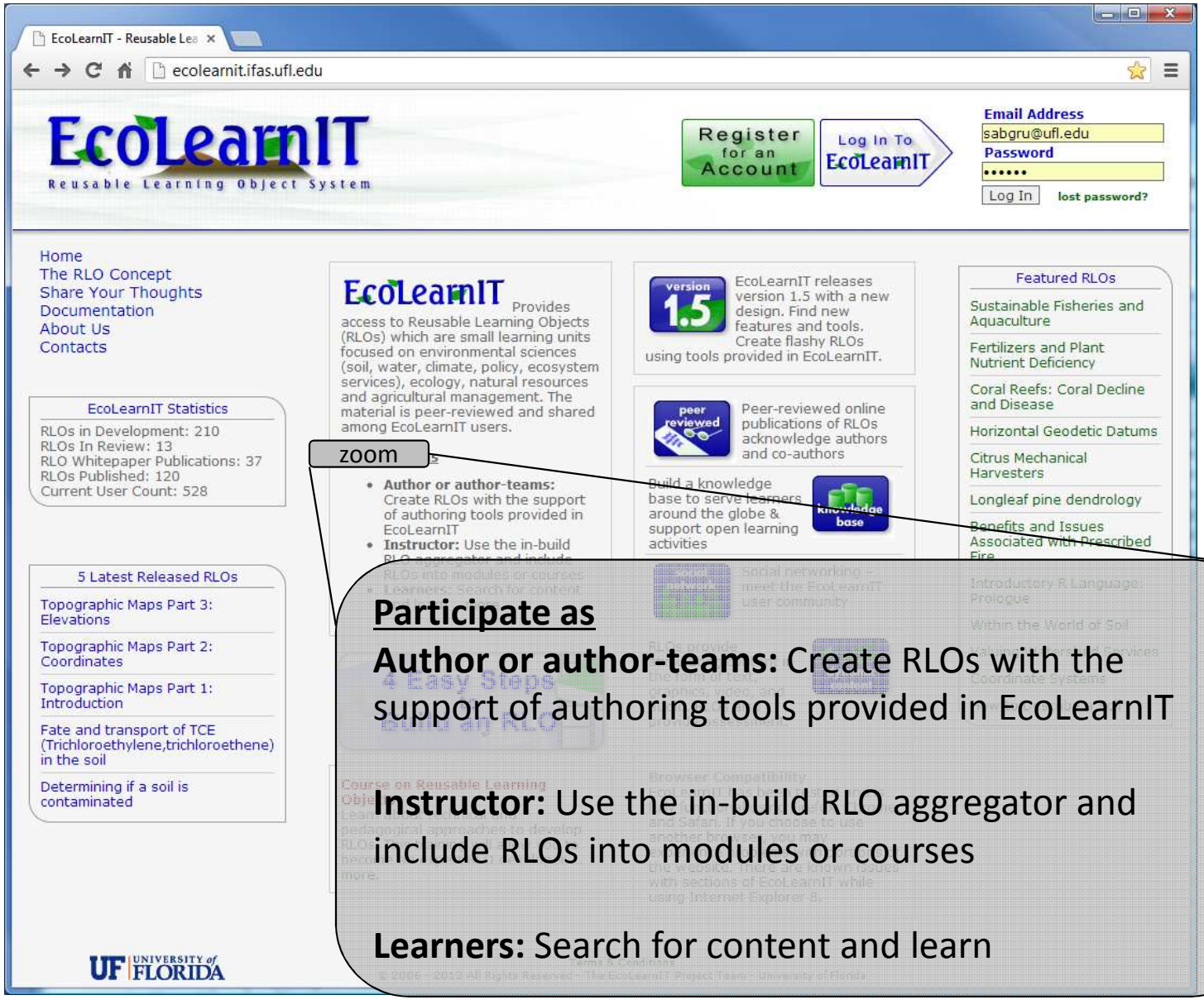
EcoLearnIT RLO System

http://EcoLearnIT.ifas.ufl.edu

Reusable

Learning

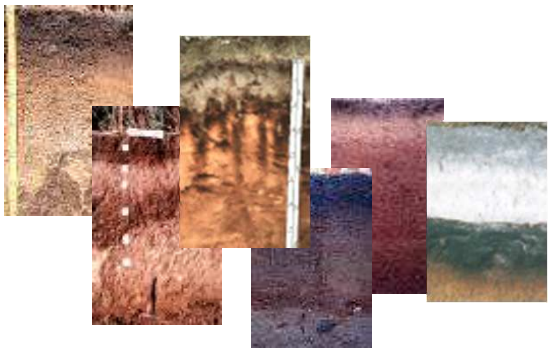
Object

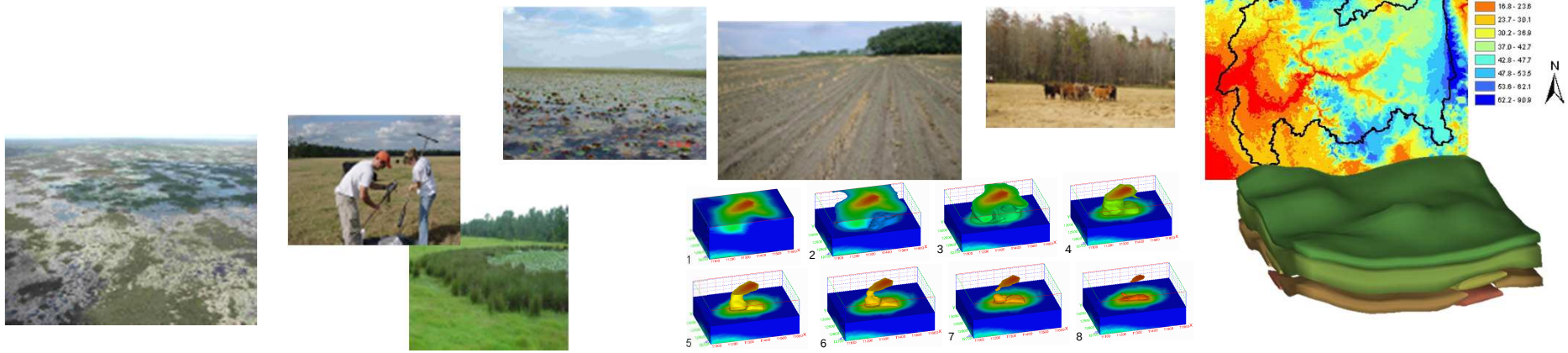


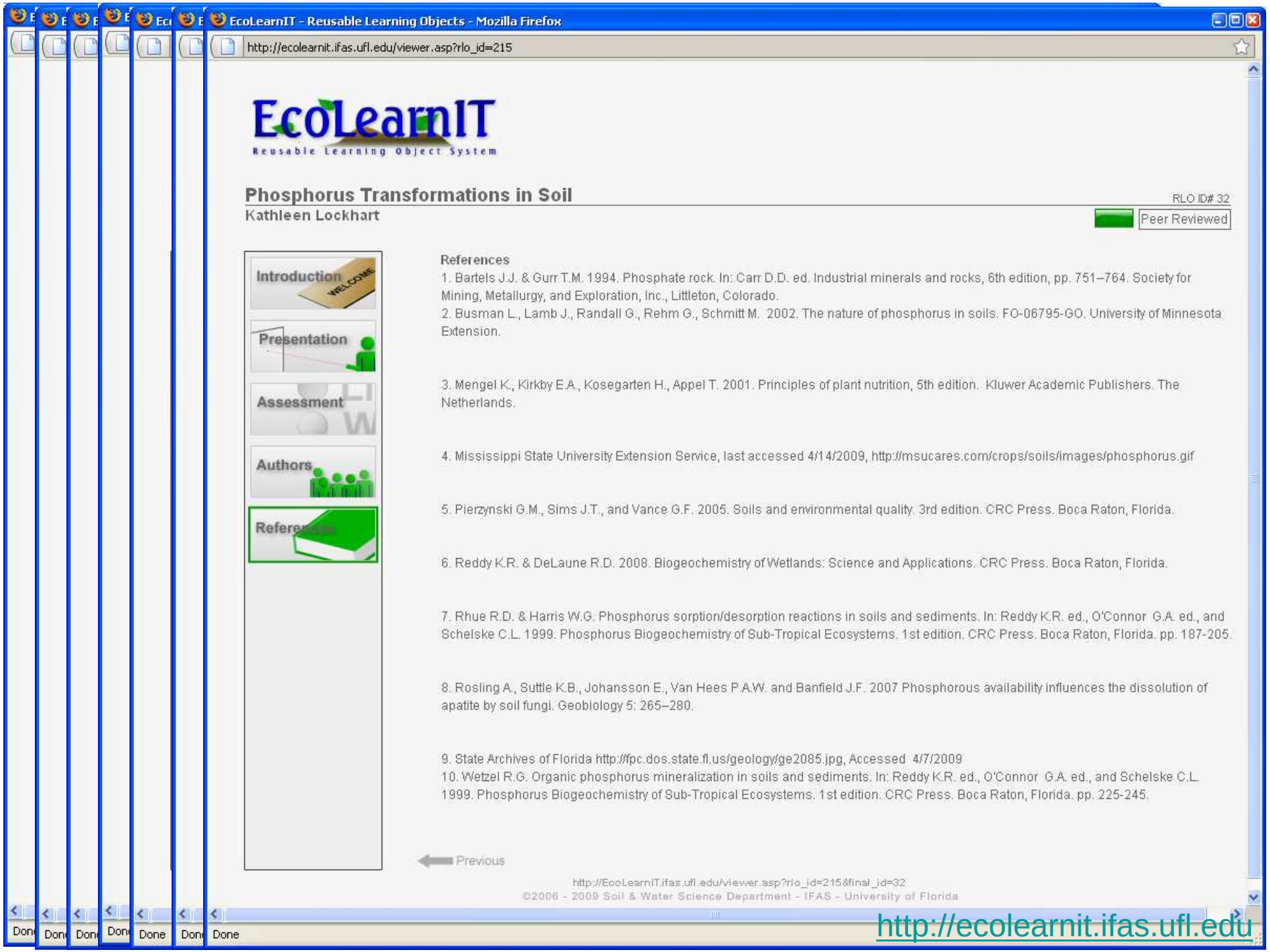
Thematic Focus in EcoLearnIT

- Environmental sciences (soil, water, and climate)
- Wetland sciences
- Agriculture and life sciences

…. and more






EcoLearnIT - Reusable Learning Objects - Mozilla Firefox
http://ecolearnit.ifas.ufl.edu/viewer.asp?rlo_id=215
EcoLearnIT
Reusable Learning Object System
Phosphorus Transformations in Soil
Kathleen Lockhart
RLO ID# 32
Peer Reviewed
Introduction
Presentation
Assessment
Authors
References
References
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10. Wetzel R.G. Organic phosphorus mineralization in soils and sediments. In: Reddy K.R. ed., O'Connor G.A. ed., and Schelske C.L. 1999. Phosphorus Biogeochemistry of Sub-Tropical Ecosystems. 1st edition. CRC Press. Boca Raton, Florida. pp. 225-245.
Previous
http://EcoLearnIT.ifas.ufl.edu/viewer.asp?rlo_id=215&final_id=32
©2006 - 2009 Soil & Water Science Department - IFAS - University of Florida
Done
http://ecolearnit.ifas.ufl.edu

EcoLearnIT - Reusable Learning Objects - Google Chrome

ecolearnit.ifas.ufl.edu/viewer.asp?rlo_id=466

EcoLearnIT
Reusable Learning Object System

Growing Switchgrass for Biomass

Ray Smith, Kenton Sena

Temporary RLO ID #466

White Paper

previous next

Introduction

Presentation

Assessment

Authors

Reference

RLO ID#: 466

Learning Objectives:
To acquire a general understanding of the process of establishing switchgrass stands for biomass production.

Ranking:
Basic/very simple learning materials

Target Audience:
Extension/outreach

Author

Ray Smith
University of Kentucky

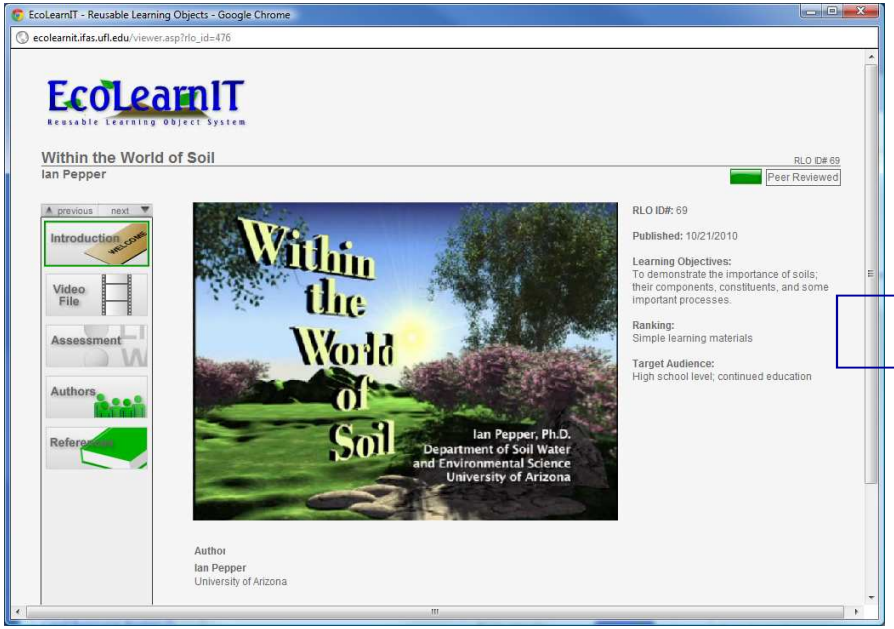
Kenton Sena
Asbury University

Next

Graduate Online Course: Reusable Learning Objects (1 credit) Available for non-degree seeking students

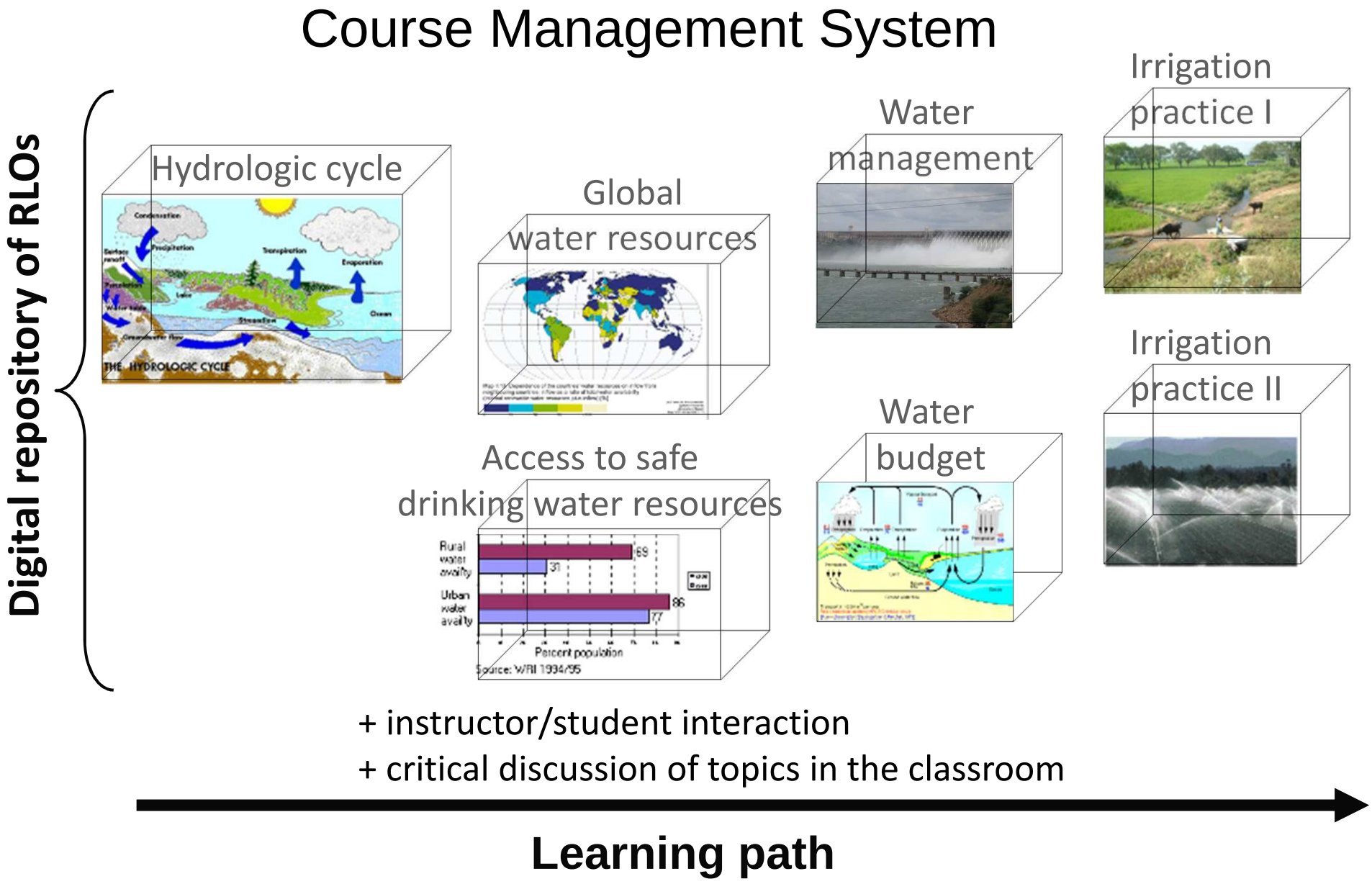
- Learn about technical and pedagogical approaches to develop RLOs
- Develop one individual RLO and one jointly with other co-authors (group RLO)
- Learn how to peer-review material

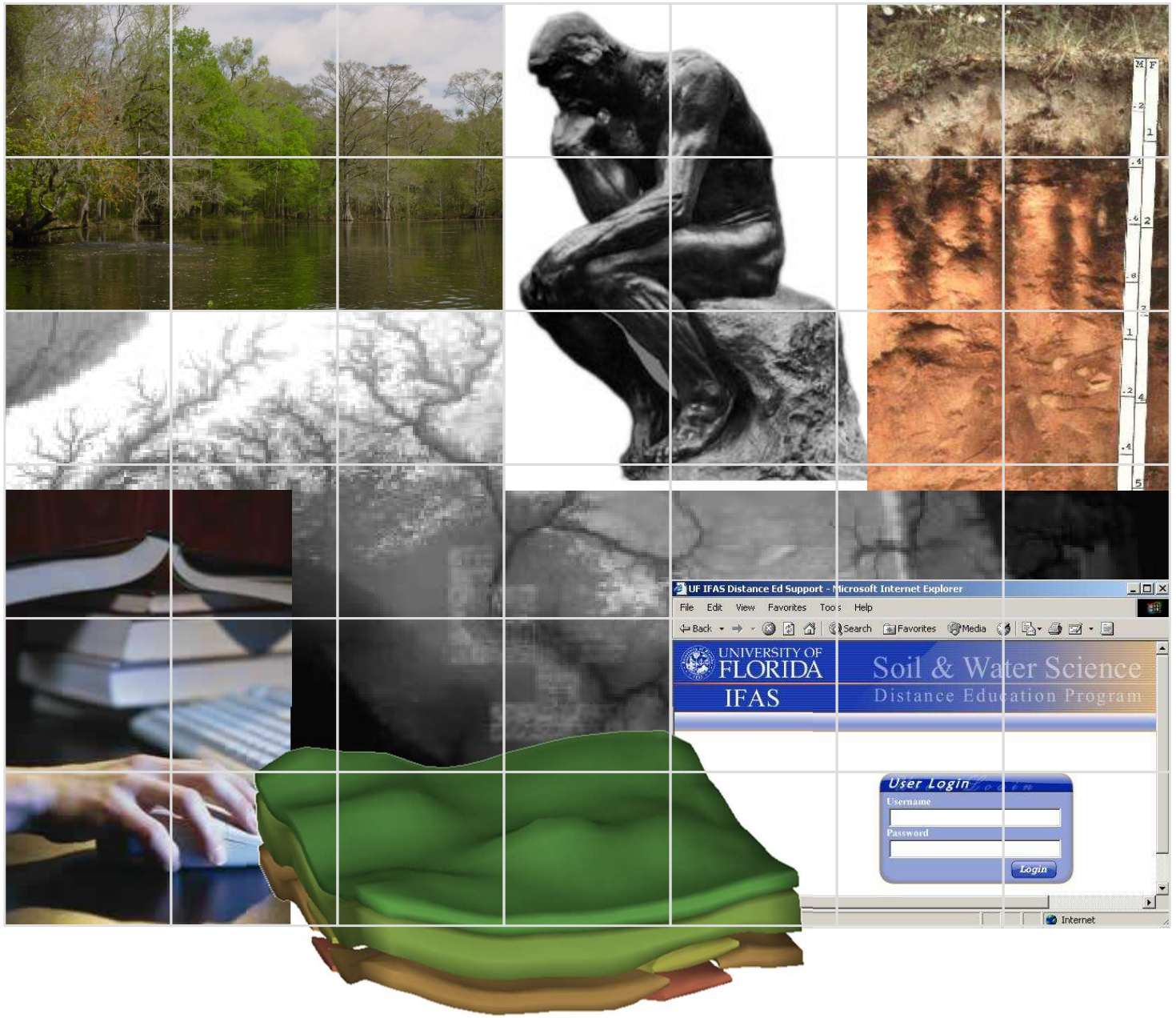
Integrate RLOs into Courses



Integrate into Course Management Systems such as Blackboard, Sakai, Moodle or others

Aggregation of RLOs into Courses





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