

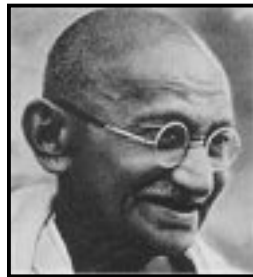


# Digital Educational Content Interoperability: *Establishing the Foundation for an Integrated System of Instruction and Assessment*

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***“You must be the  
change you wish to  
see in the world.”***

-- Mahatma Gandhi



# Agenda

- Where are we trending in terms of the role of digital content in education?
- How might the U.S. Race to the Top program influence digital support for education?
- What does this mean for the future focus of education-specific interoperability standards?



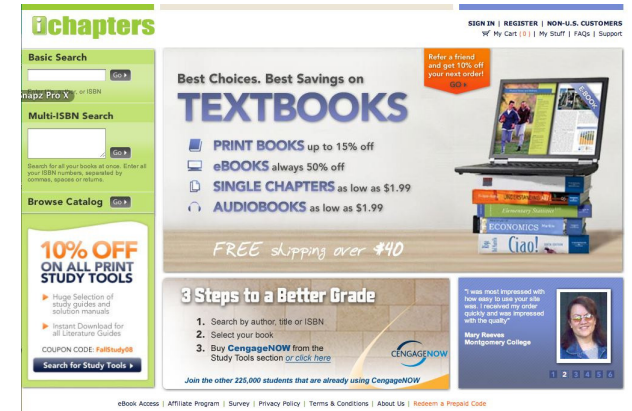
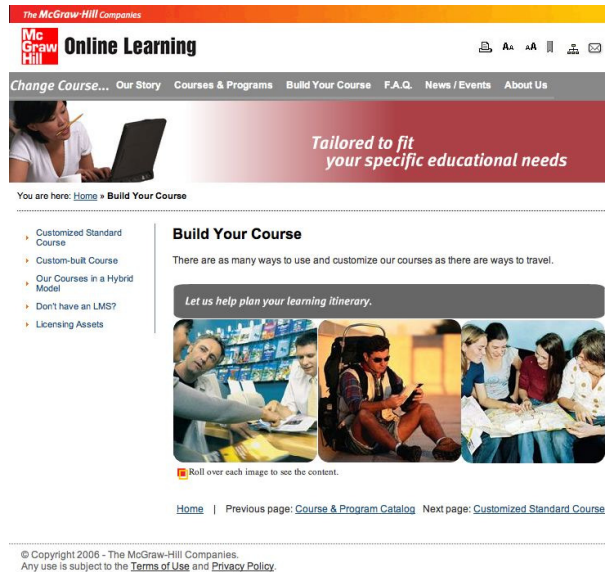
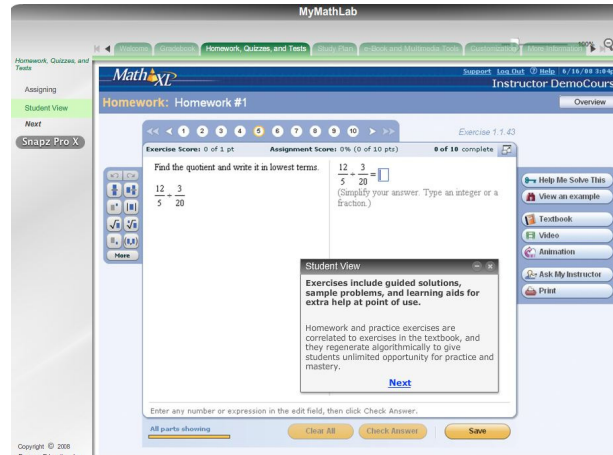
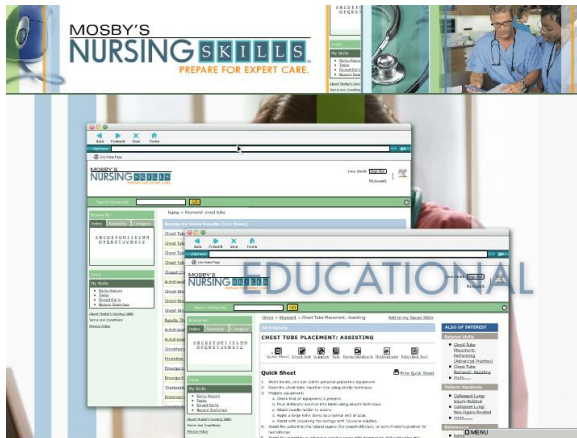
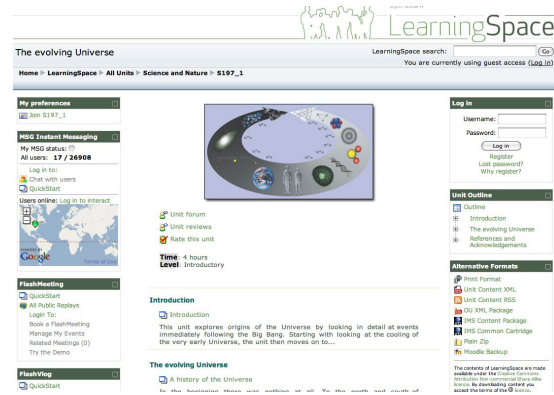
# The Bigger Picture: Technology & Learning

- **Quality:** Technology has the potential to improve personalization, engagement, and assessment
- **Access:** Technology has the potential to enable independence from the industrial age education models that still are predominant today
- **Affordability:** Technology has the potential to improve productivity and scalability

# The Trends

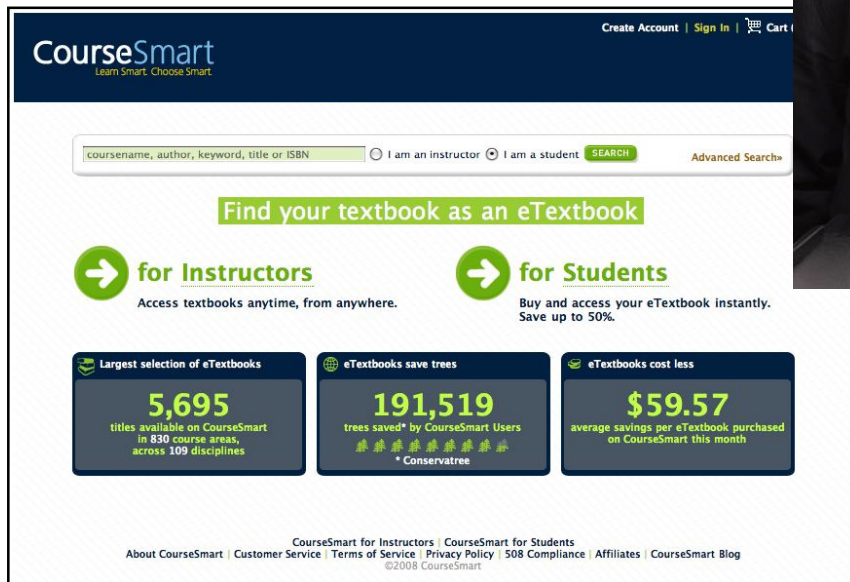
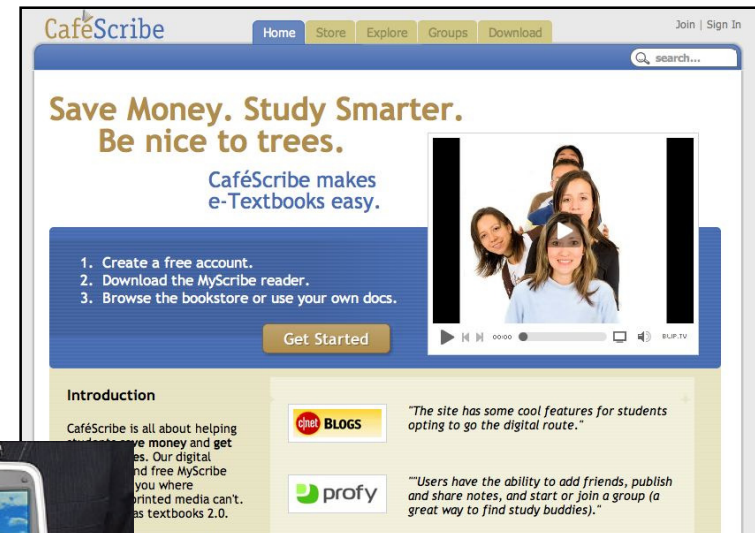


# Digital Content Innovation



- eBooks + Adaptive Tutors + Open Content + Simulations

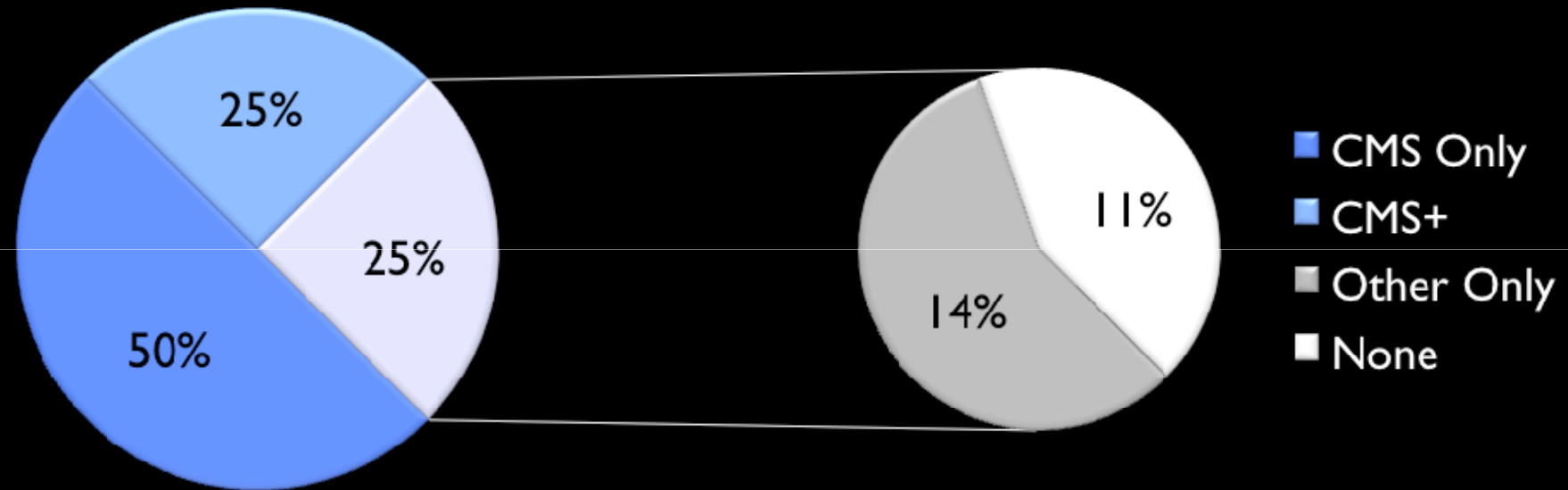




- + new learning platforms

# Online Technology Usage

BYU Faculty Survey, April 2009 (n=254)



Source: Jon Mott, Brigham Young University

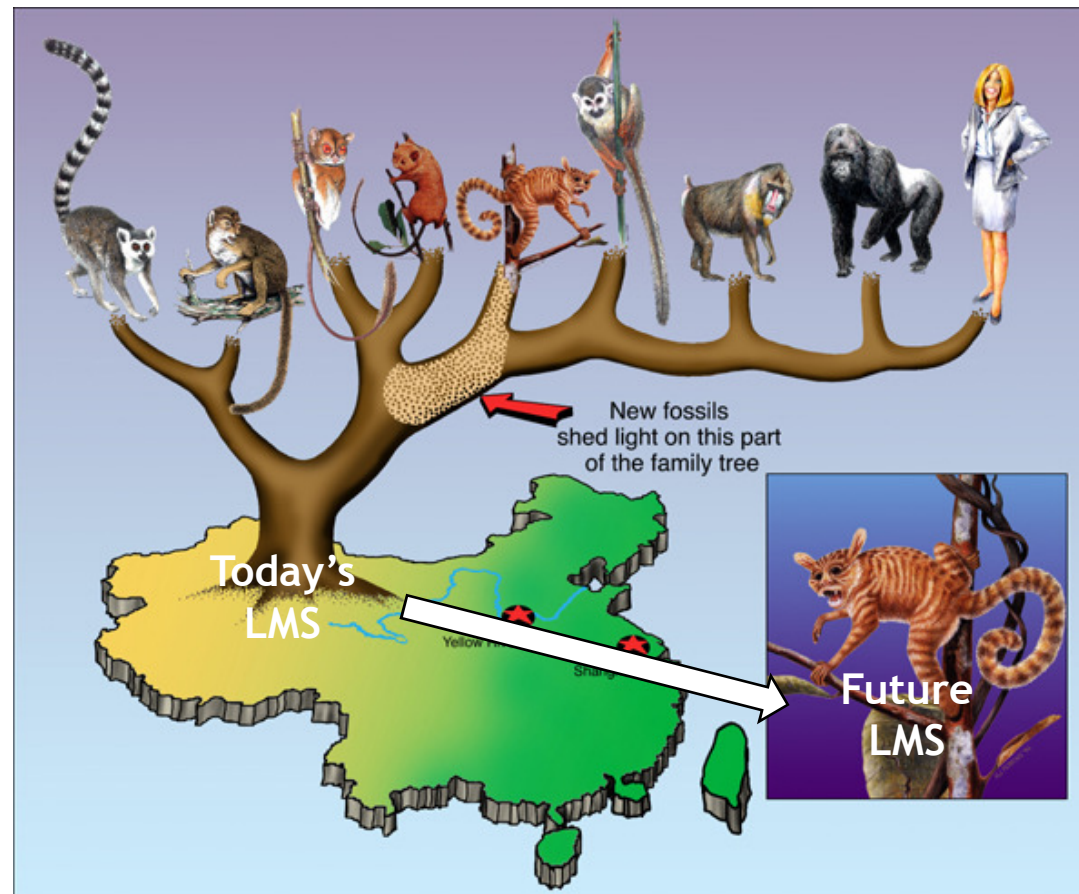


# Bb Feature Usage @ BYU

Feature	Percentage
Course Materials / Documents	85.9%
Gradebook	78.0%
Announcements	68.9%
Email	68.1%
Assessments / Quizzes	30.7%
Discussion Board	13.5%
Other (e.g., Reserve, Dropbox)	12.2%
Virtual Classroom	2.0%
Lightweight Chat	0.4%

Source: Jon Mott, BYU

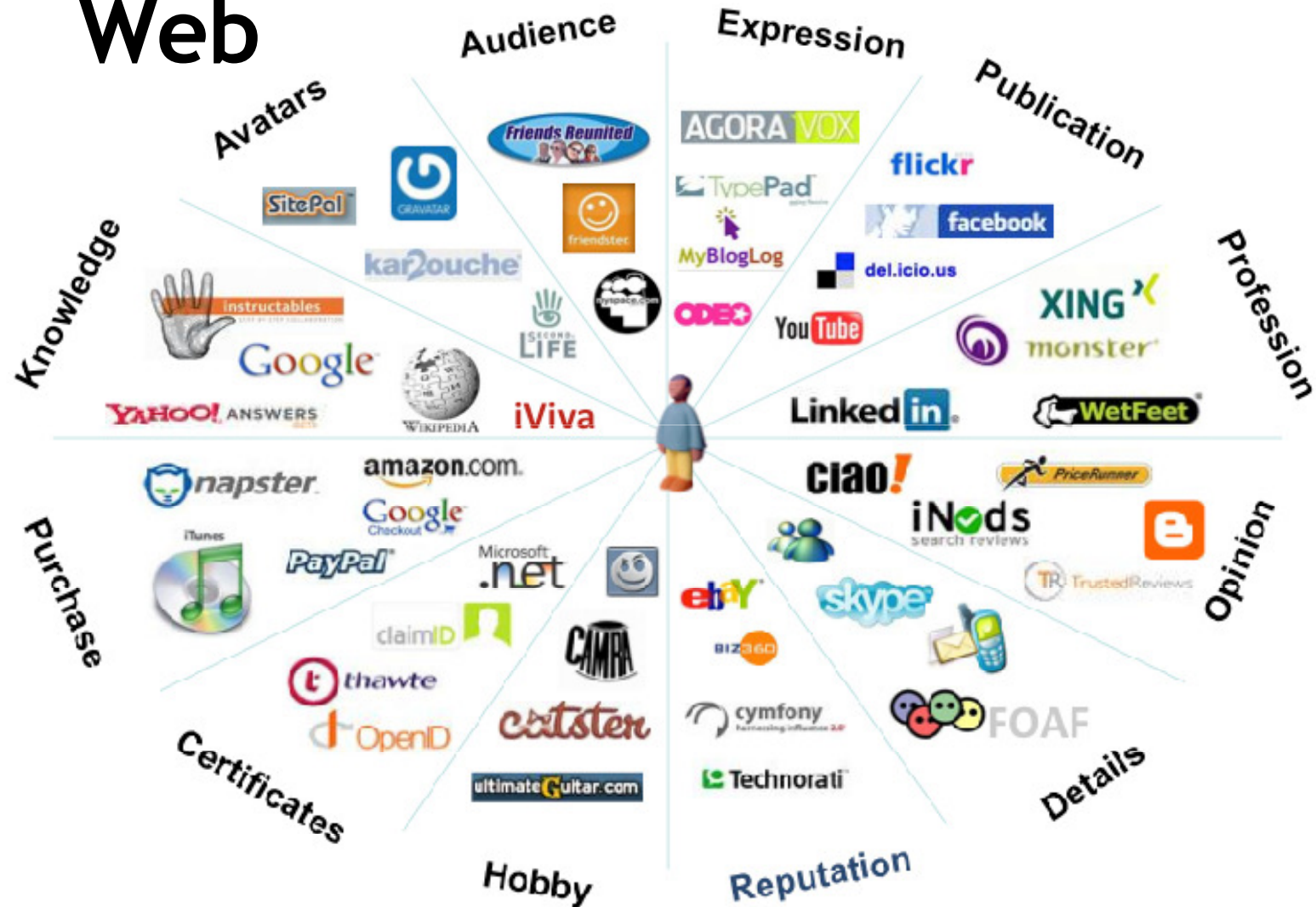
# The LMS/VLE: We Know We Need to Evolve- But to What?



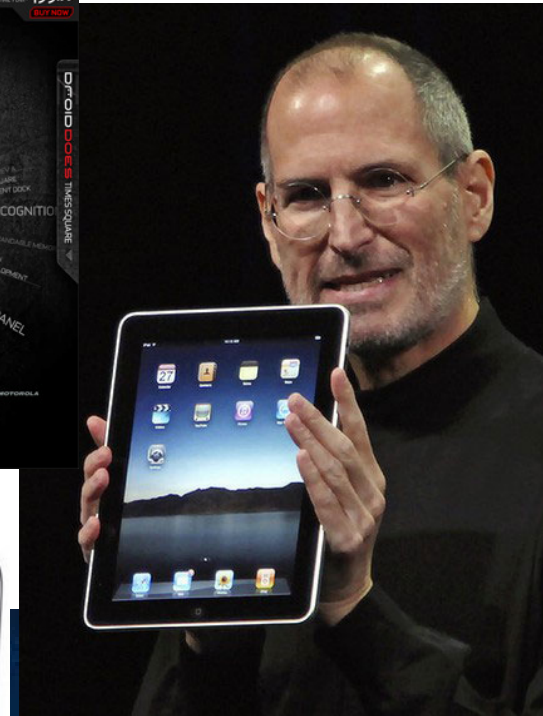
# Social Web



From  
Open  
University



- Collaboration & social applications from outside edu



App Store > Education > PragmaTouch



**mTouch**

**Description**

The first and the only native iPhone app for Moodle mTouch right away.

[PragmaTouch Web Site](#) > [mTouch Support](#) :

\$2.99 Buy App

[What's New in Version 1.2](#)



# Digital Fashion



Mobile  
devices

Technology

e-Commerce

Wireless

Wikis

e-Books

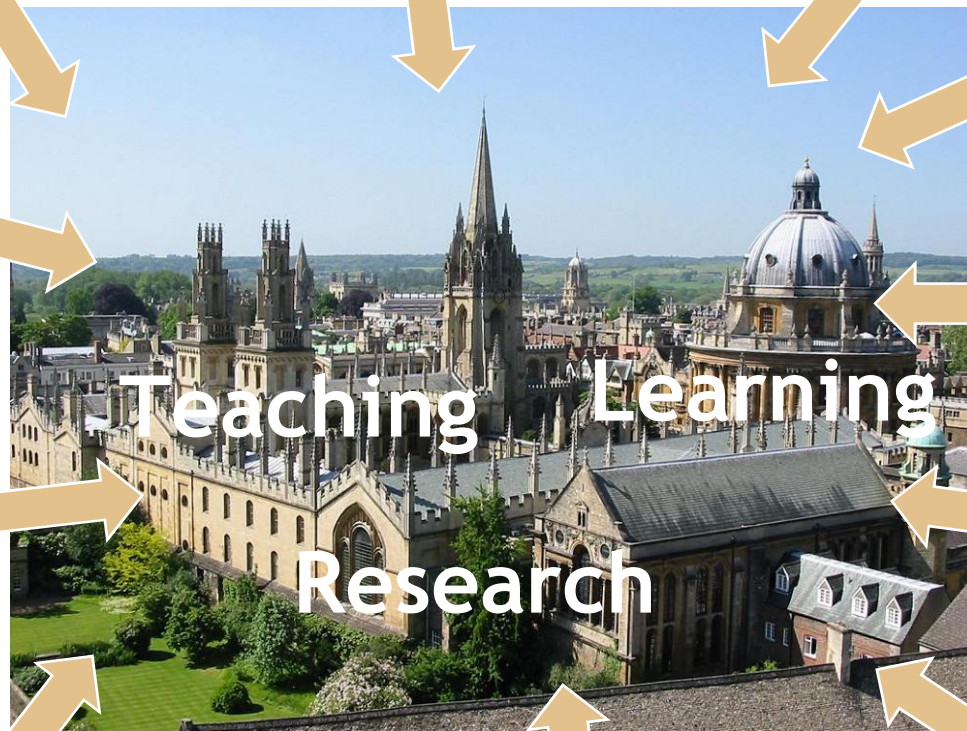
Virtual  
reality

Repositories

Web  
conferencing

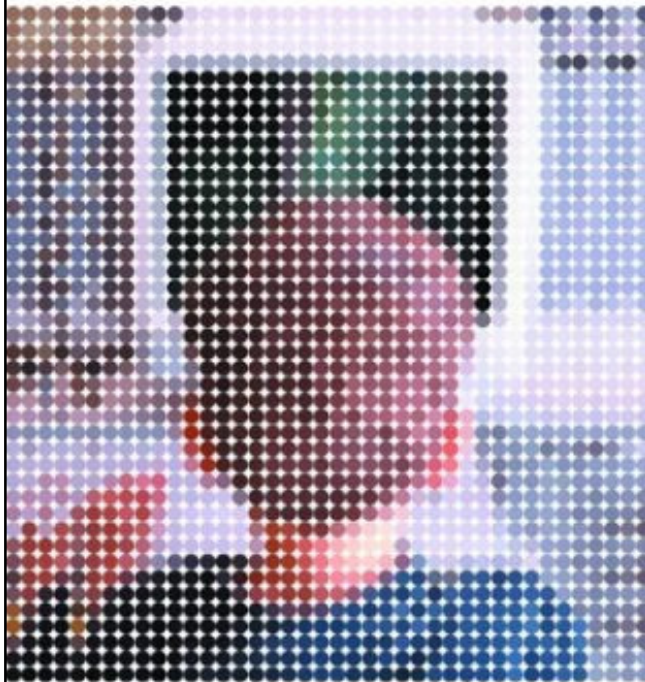
Social  
networks

Collaborative  
apps



# THE FLICKERING MIND

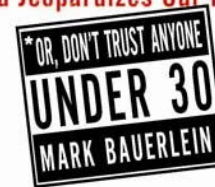
The False Promise of Technology in the Classroom  
and How Learning Can Be Saved



TODD OPPENHEIMER  
WINNER OF THE NATIONAL MAGAZINE AWARD

# THE DUMBEST GENERATION

How The Digital Age Stupefies Young Americans  
and Jeopardizes Our Future\*



# What We Think We've Learned So Far



# The Digital Content Net-Net

1. **Content is (still) not education: Duh!**
2. **Chunking is still a big challenge:** Curriculum options are good, but incoherent content choices are not
3. **All or nothing:** E-Book alternatives make most sense if they eliminate the need for ALL textbooks
4. **The big opportunity:** Products that improve the homework/study process and provide feedback
5. **Social & web 2.0 lessons:** Educational experience is critical - requires tools & communities
6. **Growing a long tail:** It makes sense for edu!

# Agenda

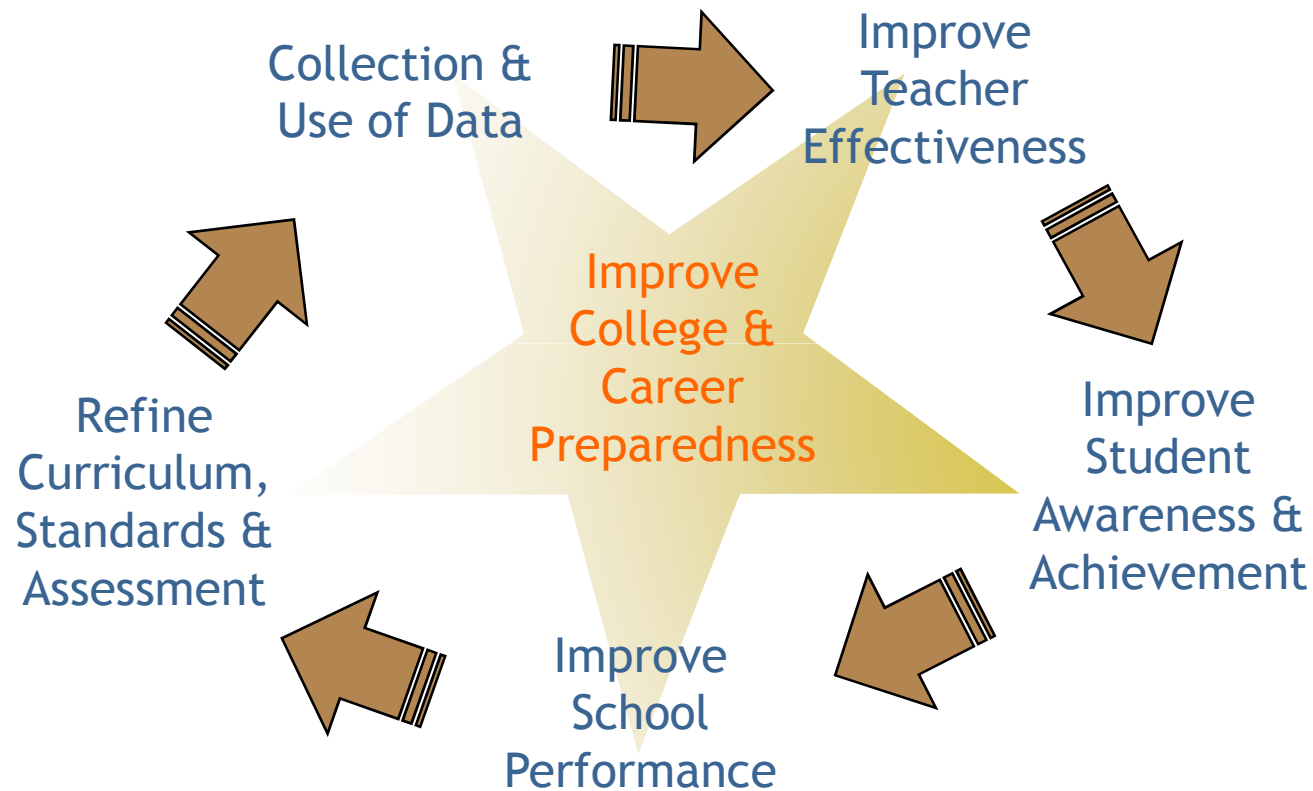
- Where are we trending in terms of the role of digital content in education?
- How might the U.S. Race to the Top program influence digital support for K-12 education?
- What does this mean for the future focus of education-specific interoperability standards?

# The Race to the Top

How Can Nations Improve  
Results from their Education Systems?



# Race to the Top Objectives



# The Common Core State Standards

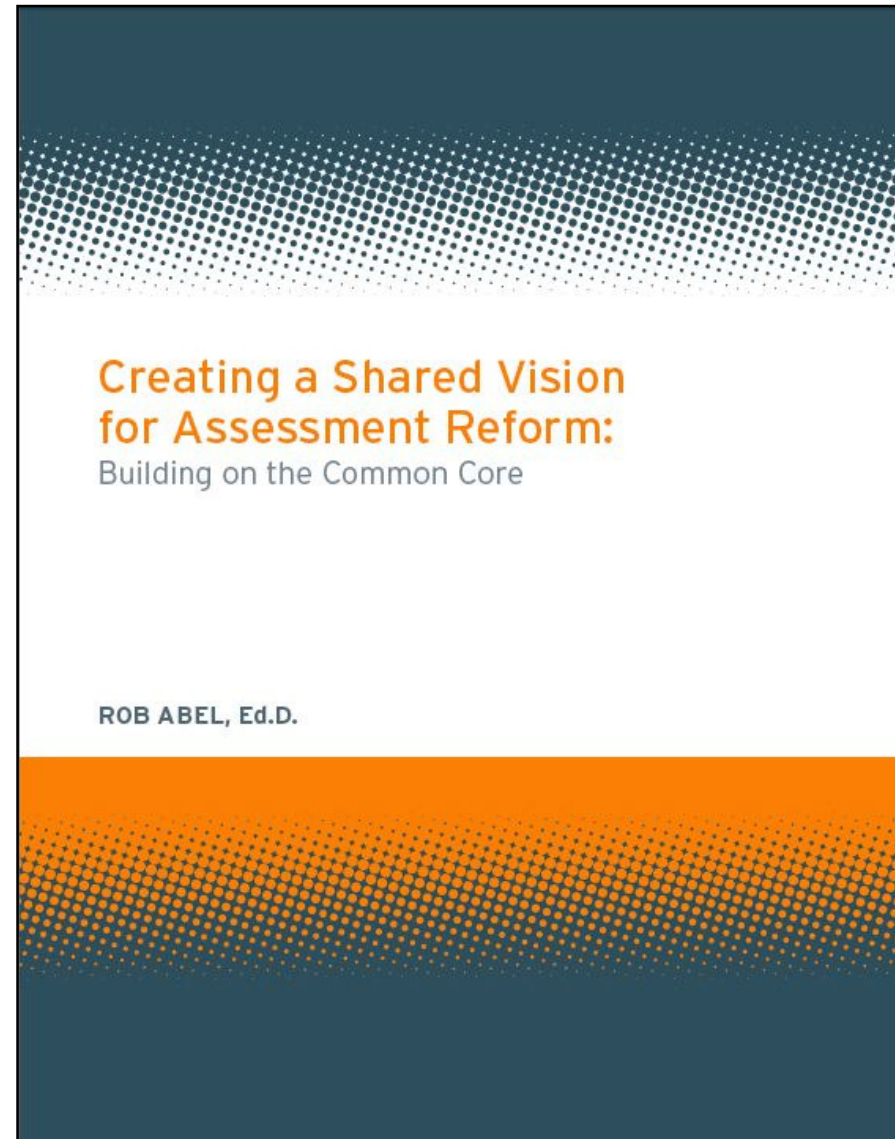
The Common Core State Standards provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and career.



**BILL & MELINDA**  
**GATES** *foundation*

# Race to the Top Assessment

BILL & MELINDA  
GATES *foundation*



“Integrated System of  
Instruction and Assessment”  
Based Upon  
the Common Core



## ONGOING TECHNOLOGY-SUPPORTED LEARNING, PRACTICE, & FEEDBACK

### Online Learning Activities

- Lessons
- Quizzes
- Exercises
- Adaptive Tutors
- Digital Media
- Simulators

### Interactive Whiteboard & Classroom Response Activities

- Lessons
- Interactive polling
- Quizzes
- Digital Media
- Simulators

## FORMAL ASSESSMENT EVENTS

### Formative Assessment Platform

### Summative Assessment Platform

## TEST ADMINISTRATION

### Test Item & Performance Event Bank

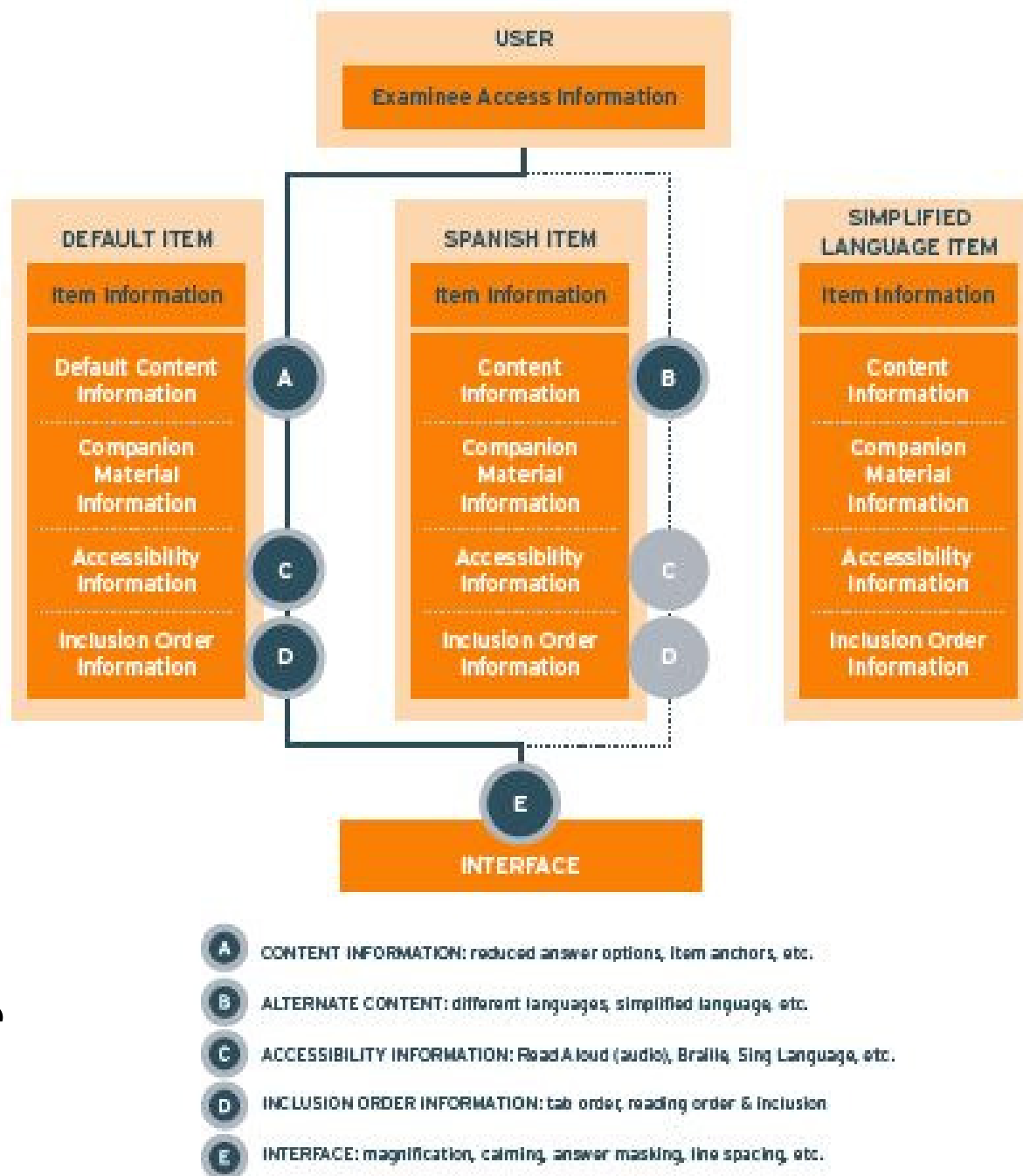


### Item & Test Authoring & Auditing Tools



# Accessible Portable Item Profile (APIP)

QTI +  
Access for All +  
Common Cartridge





# Race to the Top Implications on Educational Technology

1. **Assessment will no longer be primarily a standalone function outside of the teaching and learning process**
2. **Alternative approaches to and adaptations of the core curriculum will be critically important**
3. **Direct, effective, and timely feedback to students and parents is expected**
4. **Seamless integration of content, learning tools, assessments, and delivery platforms and comparable results across online and classroom is essential**

# Agenda

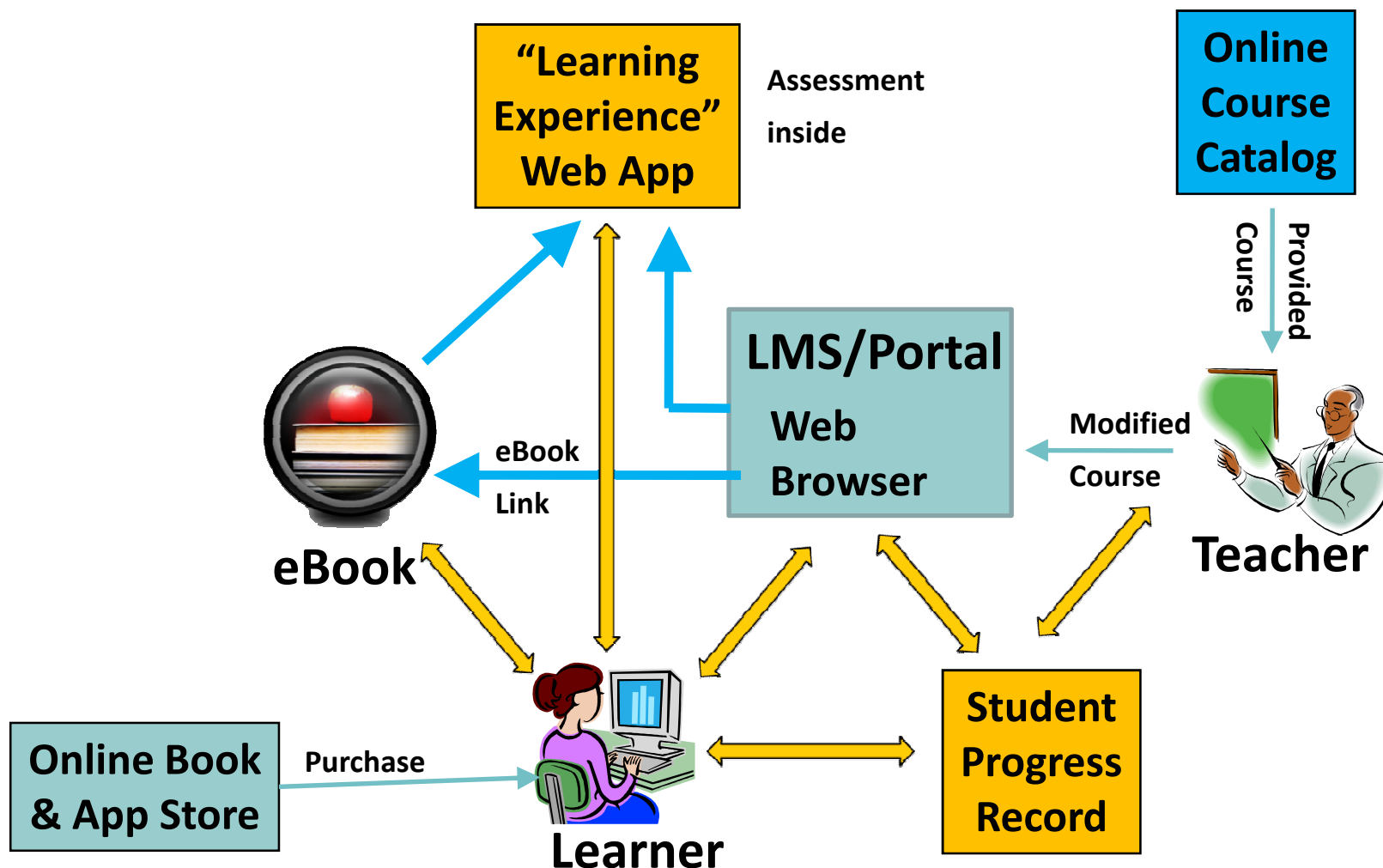
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**11.00-12.30**

***Breakout session 3***

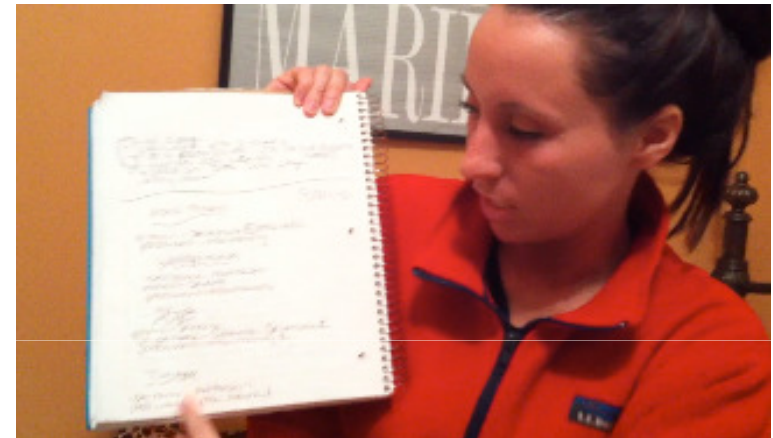
***The next generation of school interoperability: classroom meets online, learning meets data*** During this session there will be a panel discussion moderated by Rob Abel of the IMS Global Learning Consortium with several leading providers of classroom and online learning technologies and school operators specialising in personalised learning. It is clear that to students, teachers and administrators there should be a seamless user experience across classroom and online. And all systems should produce data that help improve the personalisation of the learning experience in line with every pupil's needs. How do we get there from here using vendor-neutral interoperability as a foundation? Participants include: Blackboard, SMART, RM, and Icodeon.

# The New “Content” Interoperability



# Case Study: Amanda Severance

- Senior in Special Education
- Technology in the Classroom Course
- Eleven different accounts
- Setup required technical support



EVERNOTE



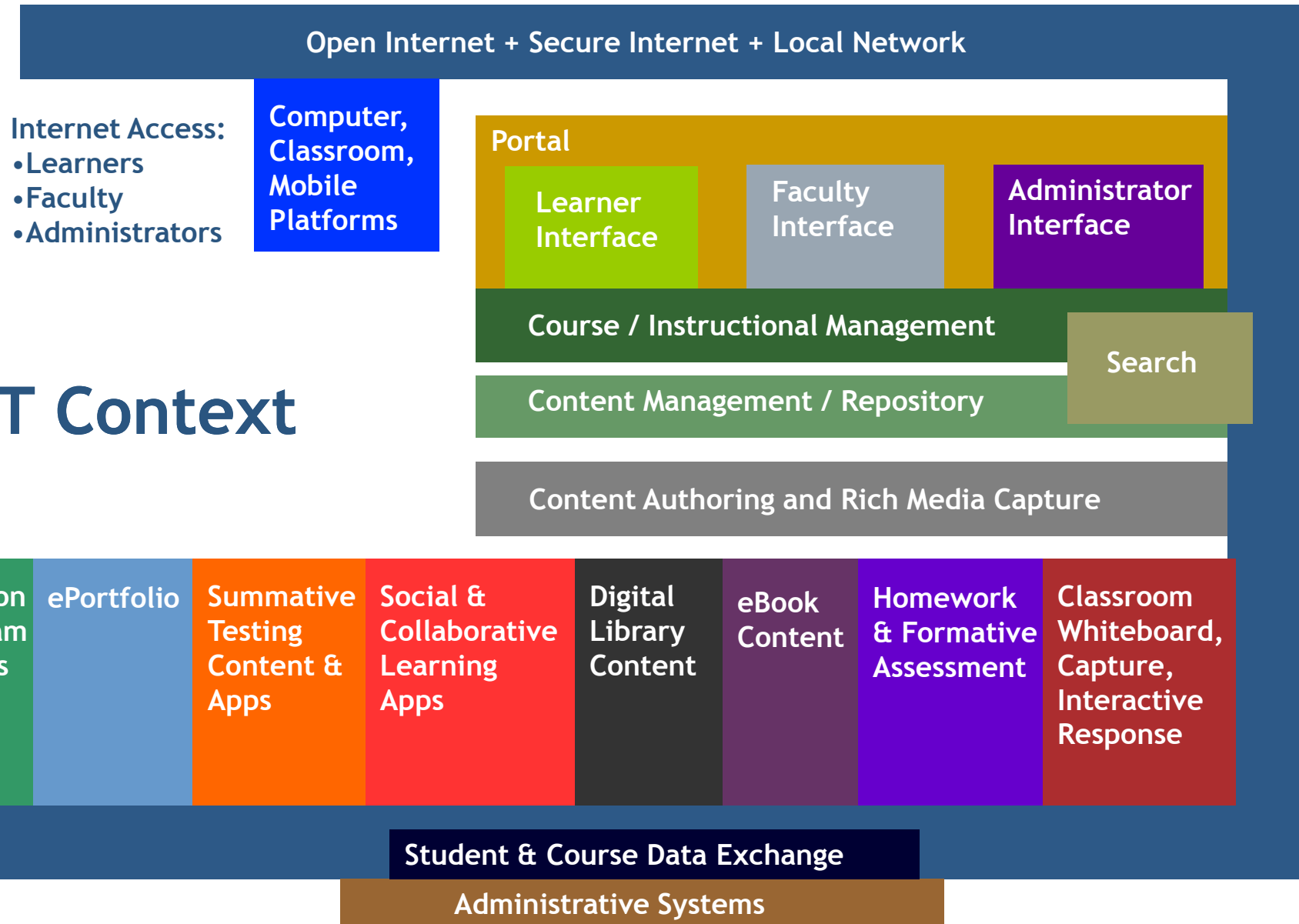
Wikispaces



delicious

social bookmarking





## ICT Context



# The Next Generation of Education Interoperability Stds

- Content integration is a small piece: ICT system and web application integration are key
- “Content” must be enabled in all its forms, especially “content as a service”
- Assessment is the key education-specific type of content
- Integration across classroom and online experiences will become essential
- Must make life easier & better for suppliers & end-users

# IMS Digital Learning Services Stds

*Free  
the  
content*



**Common  
Cartridge**

*Seamlessly  
connect  
to learning*



**Learning  
Tools  
Interoperability  
(LTI)**

*The information  
architecture for  
learning*



**Learning  
Information  
Services (LIS)**



# Associated IMS Standards

## **Question and Test Interoperability:**

Assessment interchange standard - items, tests, results - part of Common Cartridge but also stands on its own

## **Access for All:**

Metadata standards to match content alternatives to personal preferences

## **Learning Design:**

XML language for capturing the pedagogy associated with a sequence of collaborative learning activities

## **Learning Object Discovery & Exchange (LODE):**

Standards for accessing repositories of learning objects

## **Gradebook, ePortfolio & Outcomes:**

Standards for seamless interaction between learning management platforms, ePortfolios, and curriculum design

# Write Once, Run Anywhere

But, Any Interoperability  
Standard is Only as Good  
as the Community that  
Stands Behind It

# Who Will Create The New Innovative Educational Experiences?



**Teaching**



**Learning**

**Research**

# Summary

- **Within the next 10 years all educational content will be digital and most will be applications**
- **Assessment will be integrated throughout the instructional experience - in class and online**
- **Education-specific standards must make it easy to plug together a flexible variety of cooperating applications for the benefit of the student, teacher, and institution**

# Thank You!

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