



IMS GLOBALTM
Learning Consortium

The Coming ***Learning & Education Revolution*** and the Role of ***Smart Media & Smart ICT***

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Chief Executive Officer

IMS Global Learning Consortium (IMS Global)

<http://www.imsglobal.org/>

Twitter: @LearningImpact

Blog: <http://www.imsglobal.org/blog>

ieee spectrum

THE MAGAZINE OF TECHNOLOGY INSIDERS

7.12

SPECTRUM.IEEE.ORG

APES WITH APPS

CAN APES REALLY TALK OR ARE THEY JUST MIMICKING HUMANS? RESEARCHERS USING A NEW TABLET COMPUTER APP AIM TO SETTLE THE DEBATE

STREAMING THE OLYMPICS

THE BIGGEST BROADCAST OPERATION IN SPORTS HISTORY WILL FEATURE LIVE, HIGH-DEFINITION COVERAGE OF EVERY EVENT

COMMENTARY

ALTERNATIVE ENERGY IS A MIRAGE

VACLAV SMIL ARGUES THAT TECHNICAL DIFFICULTIES AND HIGH COSTS WILL MARGINALIZE SOLAR, WIND, AND BIOMASS FOR YEARS TO COME



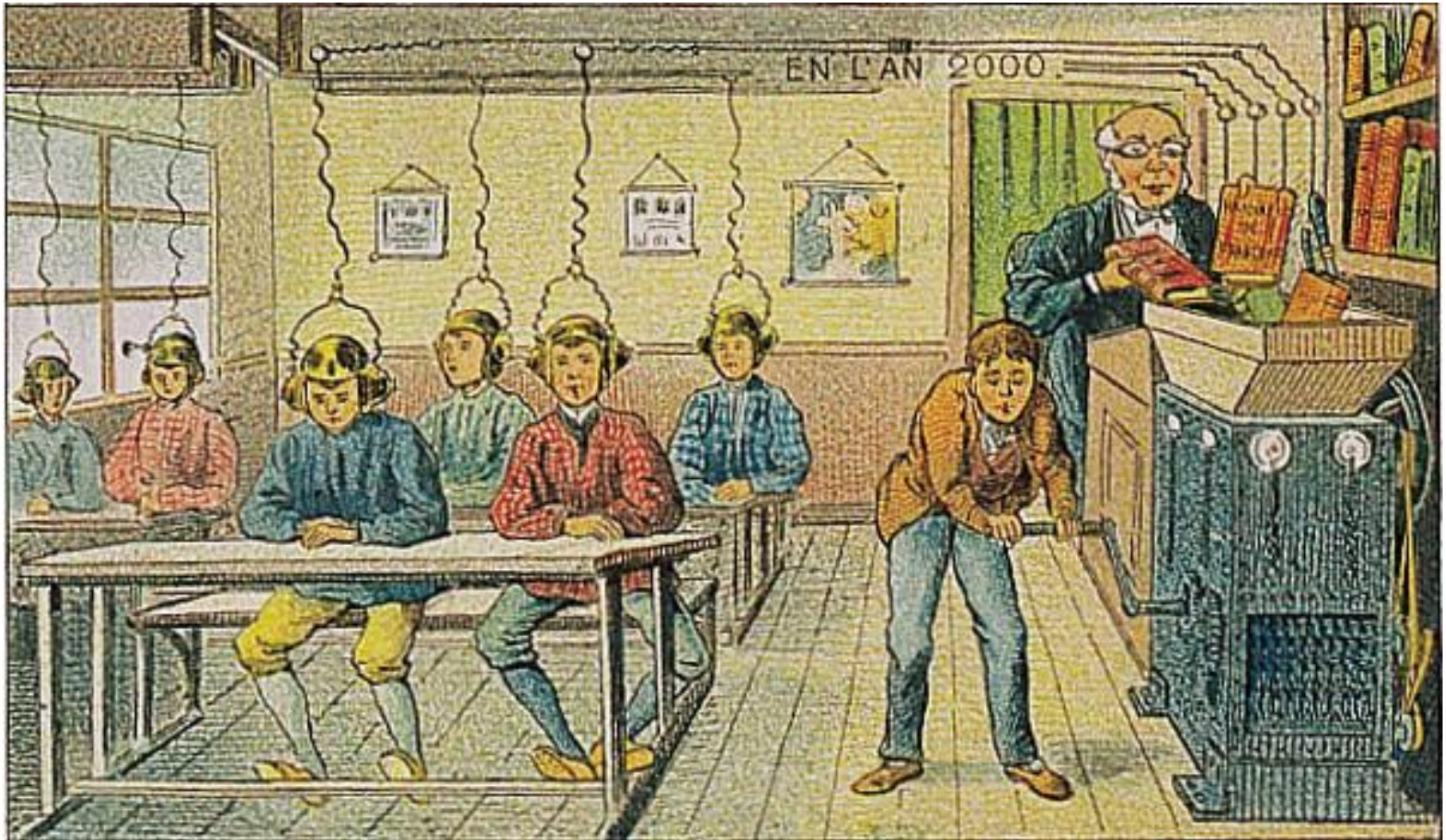


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*What Does It Mean for **Learning & Education?***



A **revolution** (from the Latin revolutio, "a turn around") is a fundamental change in power or organizational structures that takes place in a relatively short period of time.





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*What is the coming **revolution** in Education?*



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Time to Play: **Titans of Tech**

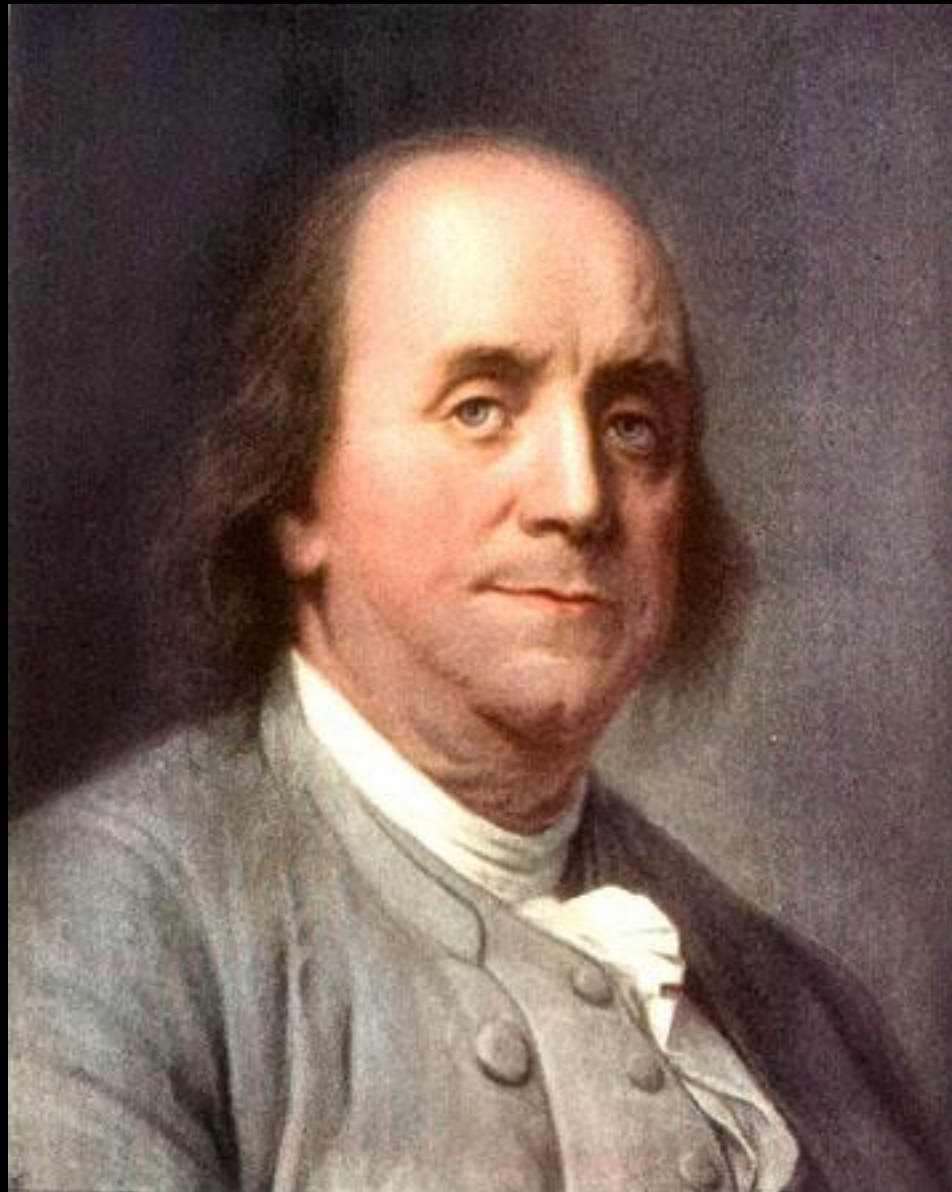


Question:
*Which of the Following High
Technology Visionaries
Completed College?*









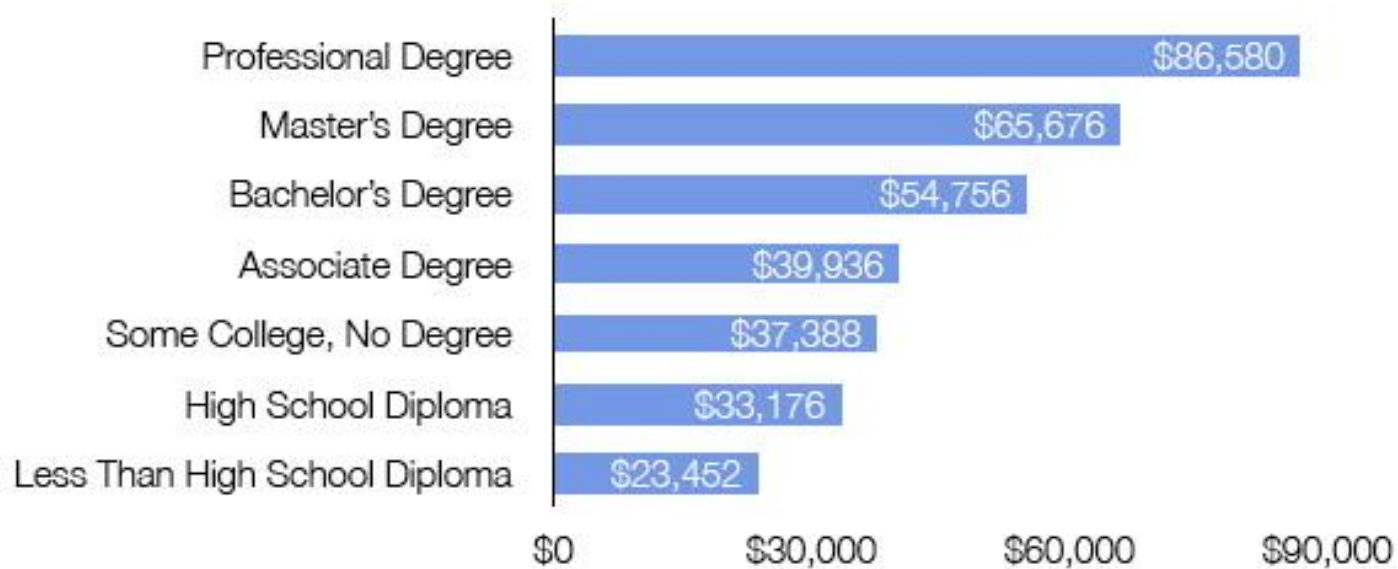
*Which of the Following High
Technology Visionaries Completed
College?*

- (a) Steve Jobs
- (b) Bill Gates
- (c) Larry Ellison
- (d) Ben Franklin

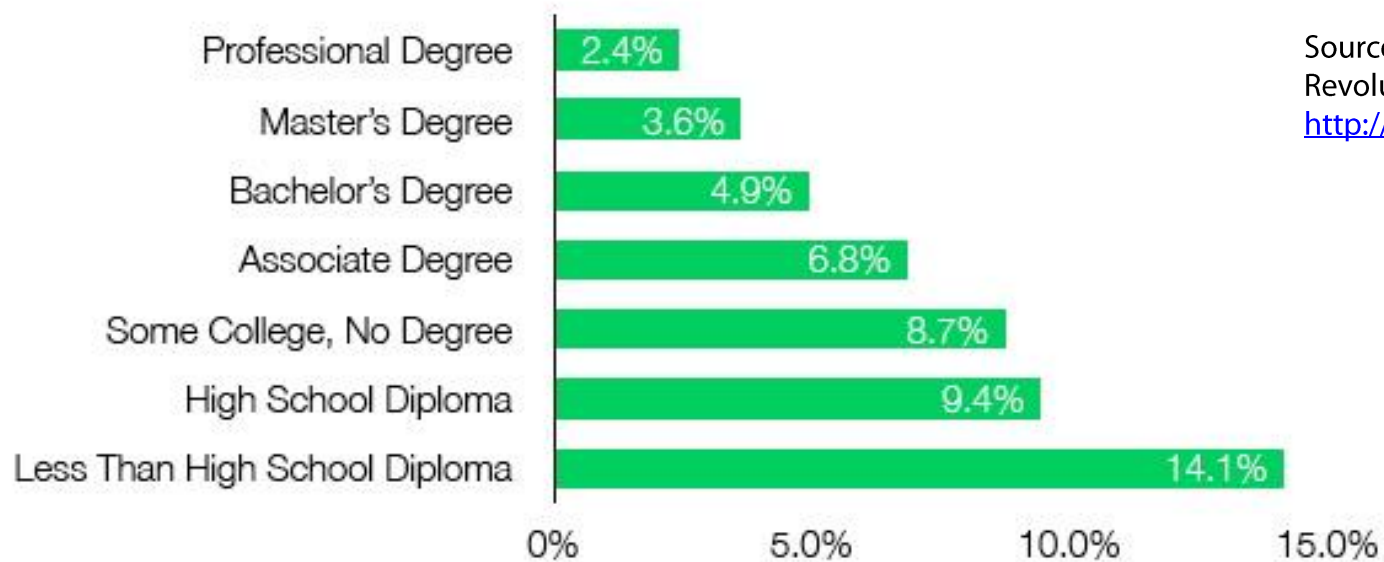


Answer:
(e) None of the Above!

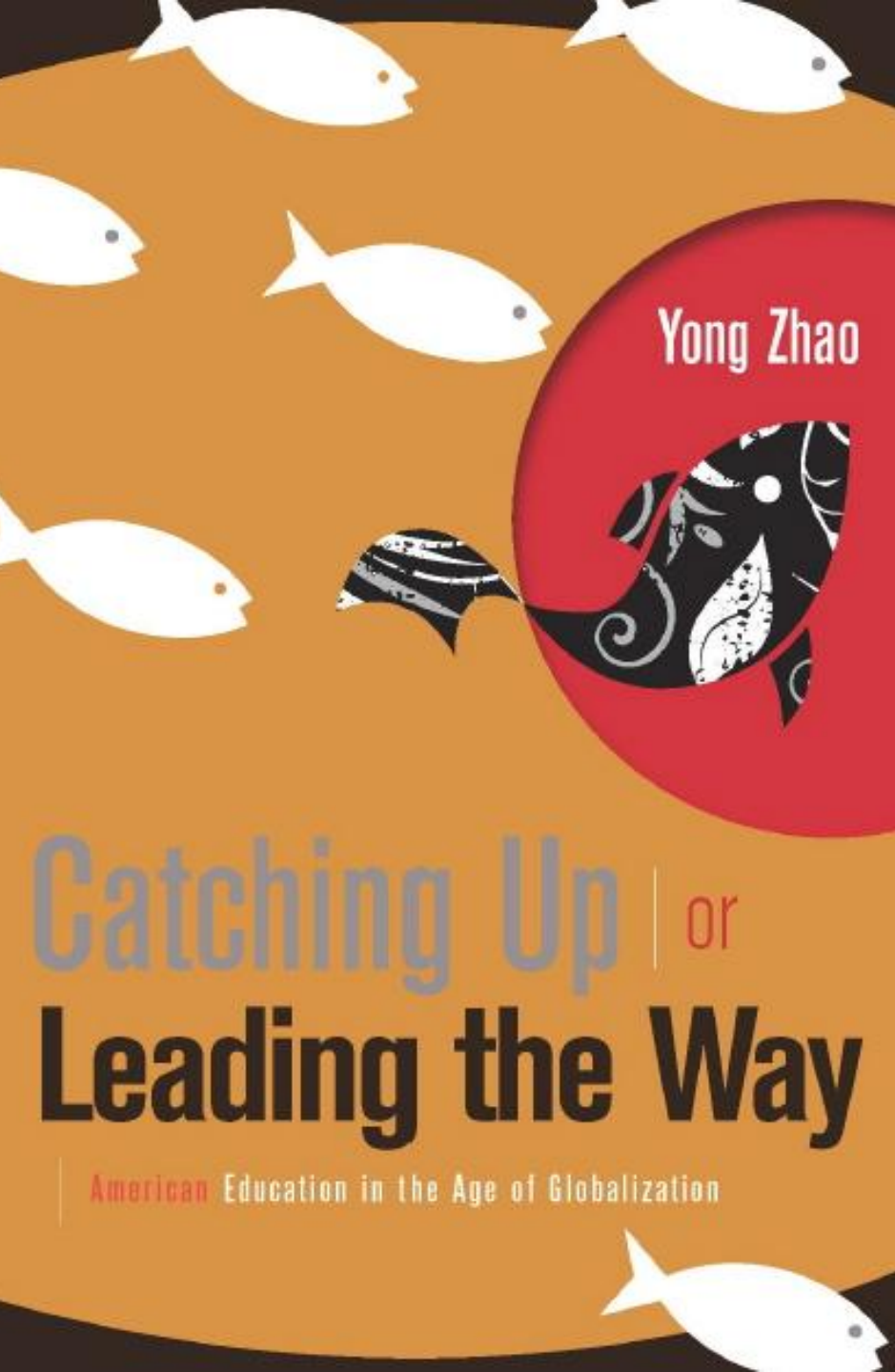
■ Median Weekly Earnings in 2011 (\$)



■ Unemployment Rate in 2011 (%)

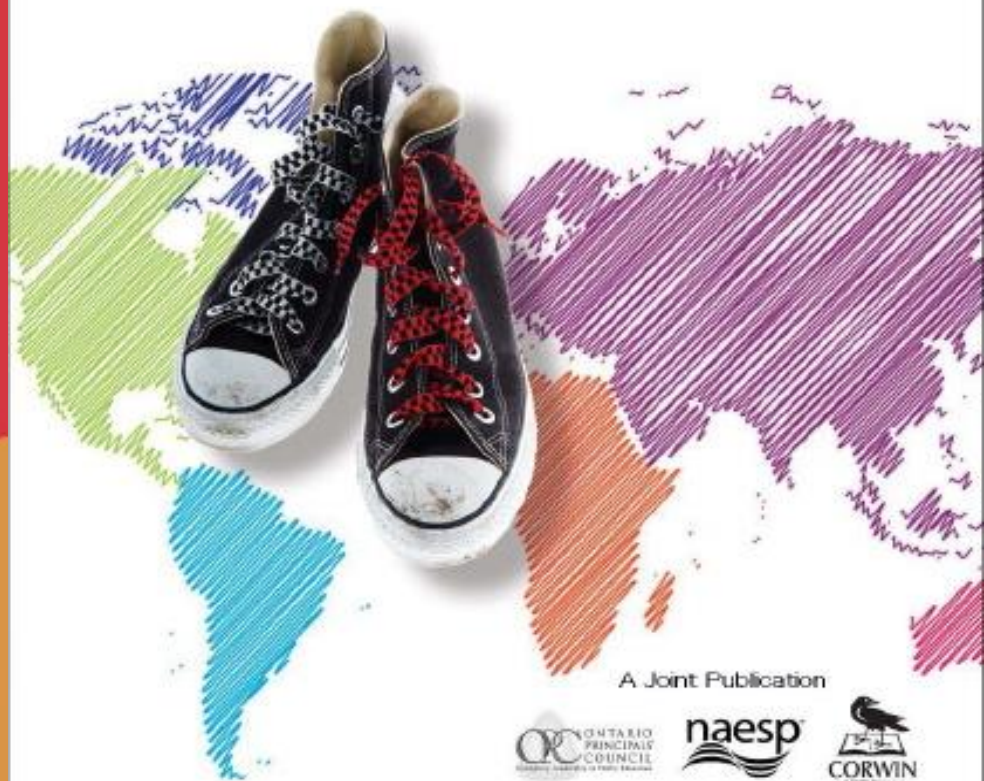


Source: GSV: American
Revolution 2.0
<http://gsvadvisors.com>



World Class **Learners**

Educating Creative and
Entrepreneurial Students



Yong Zhao

Yong Zhao

Creative, Entrepreneurial, and Global: 21st Century Education

Join Reading Club or follow me on Twitter @YongZhaoUO



Dr. Yong Zhao is an internationally known scholar, author, and speaker. His works focus on the implications of globalization and technology on education. He has designed schools that cultivate global competence, developed computer games for language learning, and founded research and development institutions to explore innovative education models. He has published over 100 articles and 20 books, including *Catching Up or Leading the Way: American Education in the Age of Globalization* and *World Class Learners: Educating Creative and Entrepreneurial Students*. He is a recipient of the Early Career Award from ...

[More Bio »](#)

Featured



My new book: World Class Learners: Educating Creative and Entrepreneurial Students
[25 May 2012 | 16 Comments | 7,282]



A Discussion on China's Recent Education Reform on CCTV 9
[30 Mar 2010 | 11 Comments | 95,210]



News and Interviews about my Book: Catching Up or Leading the Way
[14 Nov 2009 | 12 Comments | 15,082]



Video: No Child Left Behind and Global Competitiveness
[7 Aug 2009 | 18 Comments | 18,612]

<http://zhaolearning.com>

2009 PISA Results

Math



Shanghai, China



Singapore



Hong Kong, China



South Korea



Taiwan



Finland



Liechtenstein



Switzerland



Japan



Canada

Sciences



Shanghai, China



Finland



Hong Kong, China



Singapore



Japan



South Korea



New Zealand



Canada



Estonia



Australia

Reading



Shanghai, China



South Korea



Finland



Hong Kong, China



Singapore



Canada



New Zealand



Japan



Australia



Netherlands

<http://www.oecd.org/dataoecd/54/12/46643496.pdf>

U.S. Rankings in Various International Competitiveness Indicators

Current innovation-based competitiveness	6th	(in the world)
Percentage of young adults who graduate from high school	11th	(in the OECD)
Science literacy among top students	15th	(of 65 countries/regions tested)
College completion rate	16th	(in the OECD)
High school completion rate	20th	(in the OECD)
Density of broadband Internet penetration	22nd	(in the world)
Science proficiency of 15-year-olds	23rd	(of 65 countries/regions tested)
Proportion of college students receiving S&E degree	27th	(in the OECD)
Mathematics literacy among top students	28th	(of 65 countries/regions tested)
Mathematics proficiency of 15-year-olds	31st	(of 65 countries/regions tested)
Improvement in innovation-based competitiveness in the past decade	40th	(in the world)
Quality of mathematics and science education	48th	(in the world)
Density of mobile telephony subscriptions	72nd	(in the world)

Source: GSV: American Revolution 2.0

<http://gsvadvisors.com>

Individual differences
Multiple intelligences

Cultural diversity

Curiosity, passion, creativity

Schooling

Employable
skills

It is a miracle that curiosity survives formal education.
---Albert Einstein

The diagram features two blue lines that diverge from a common point on the left towards the right. The upper line slopes upwards, while the lower line slopes downwards. The text 'Individual differences' and 'Multiple intelligences' is positioned to the left of the upper line. The text 'Cultural diversity' and 'Curiosity, passion, creativity' is positioned to the left of the lower line. The word 'Schooling' is centered between the two lines. On the right side, a green rectangular box contains the text 'Enhanced Human Talents'.

Individual differences
Multiple intelligences

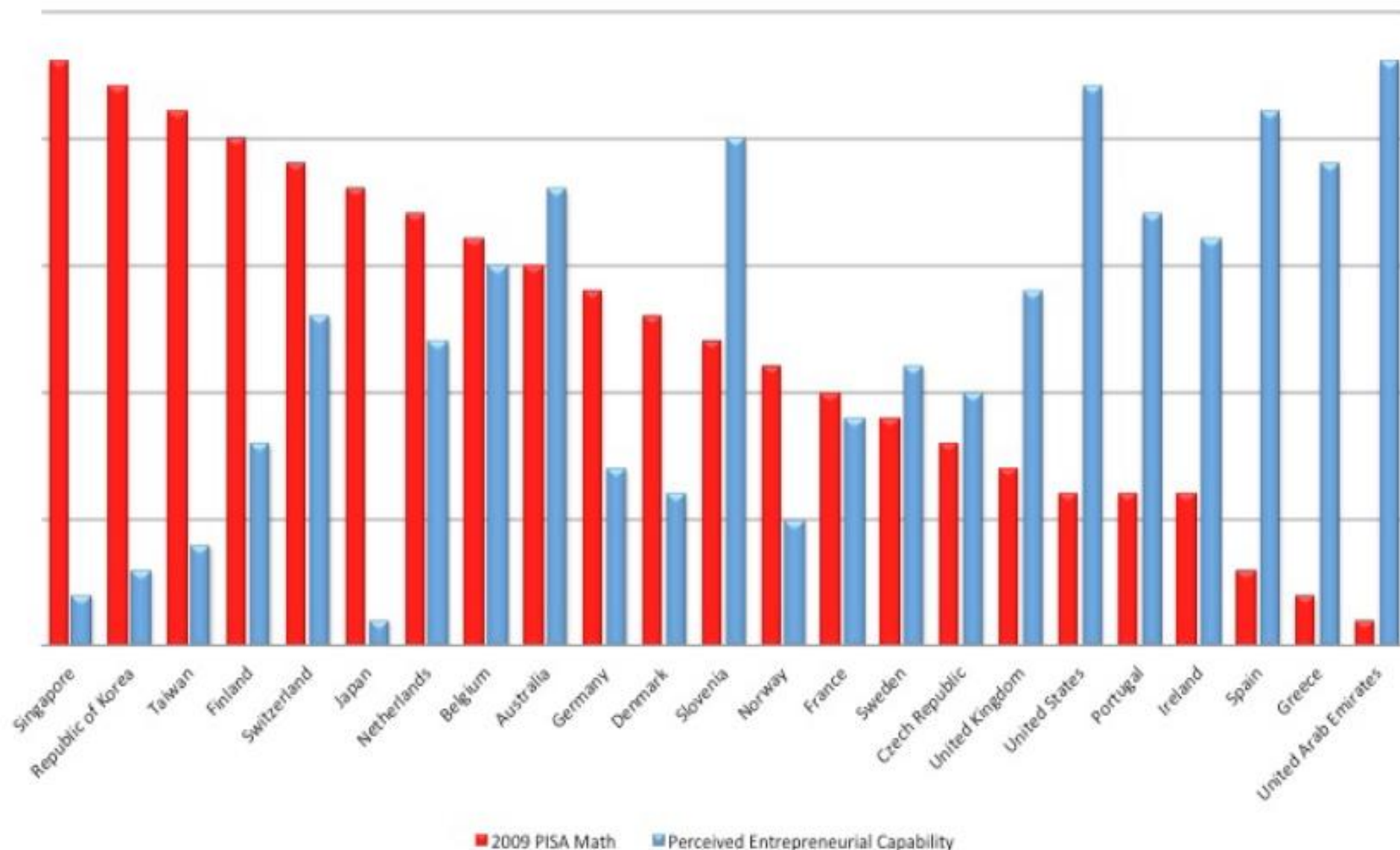
Cultural diversity

Curiosity, passion, creativity

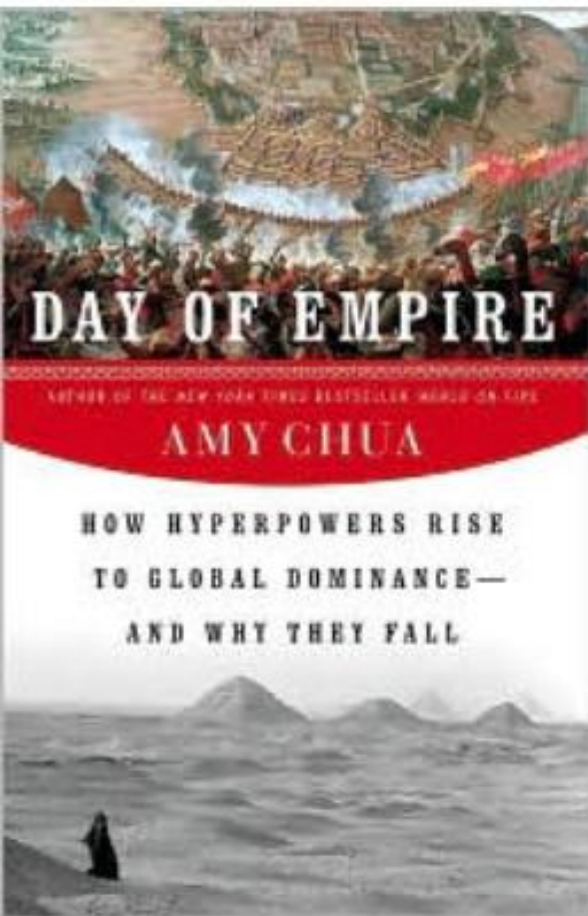
Schooling

Enhanced
Human Talents

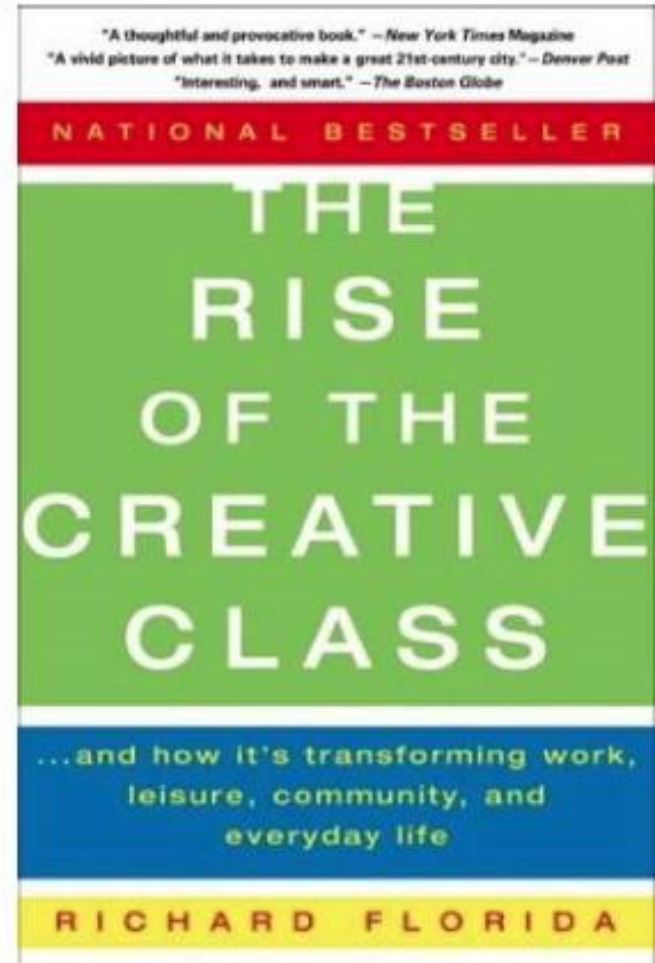
Ranking by PISA Math Score and Perceived Entrepreneurial Capability



What matters?



Diversity of talents
Creativity
Entrepreneurship
Passion





Components of the Coming **Education Revolution**

- 1. From Massification to Personalization:**
Moving from an industrial model to an individualized model
- 2. From Academic Skills to Purposeful Results:** Focus on problem-solving & product creation motivations and skills from an early age



*What Role will **Smart Media** and **Smart ICT** Play in the **Education Revolution?***

Size of Global Education Market, 2012 and 2017⁵⁹

(in billions)

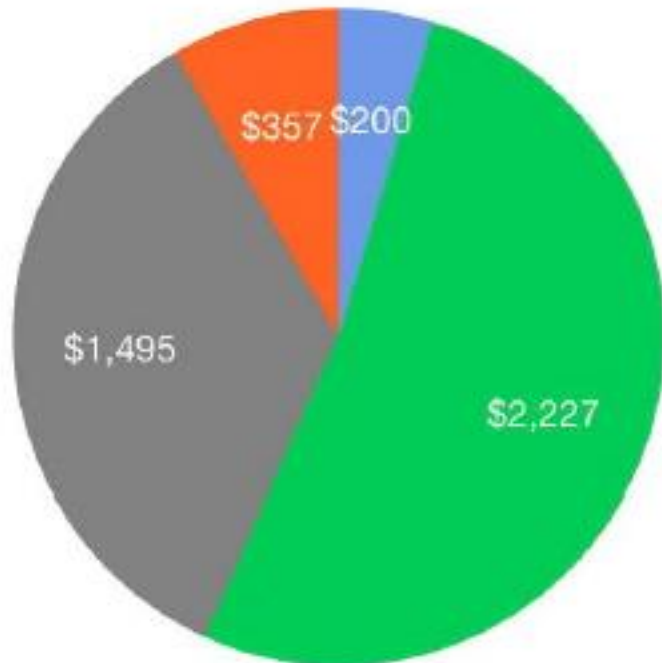
● Pre-K

● K-12

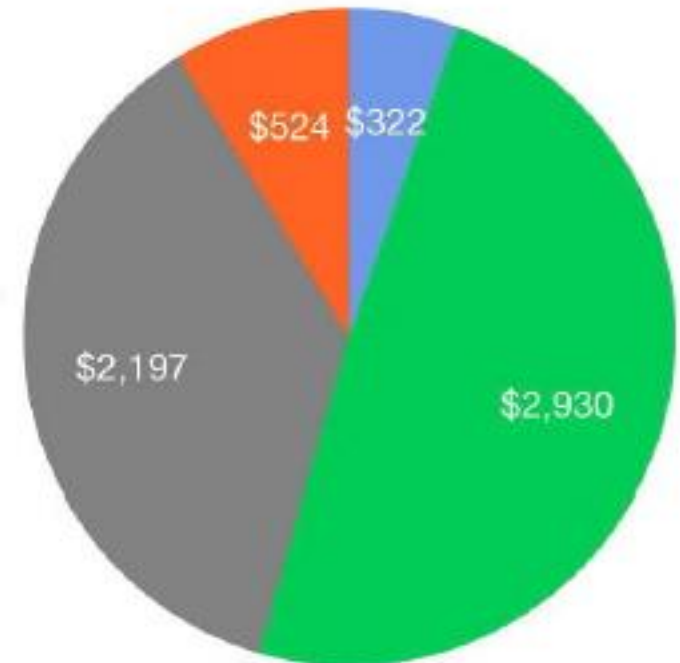
● Postsecondary

● Lifelong Learning

2012

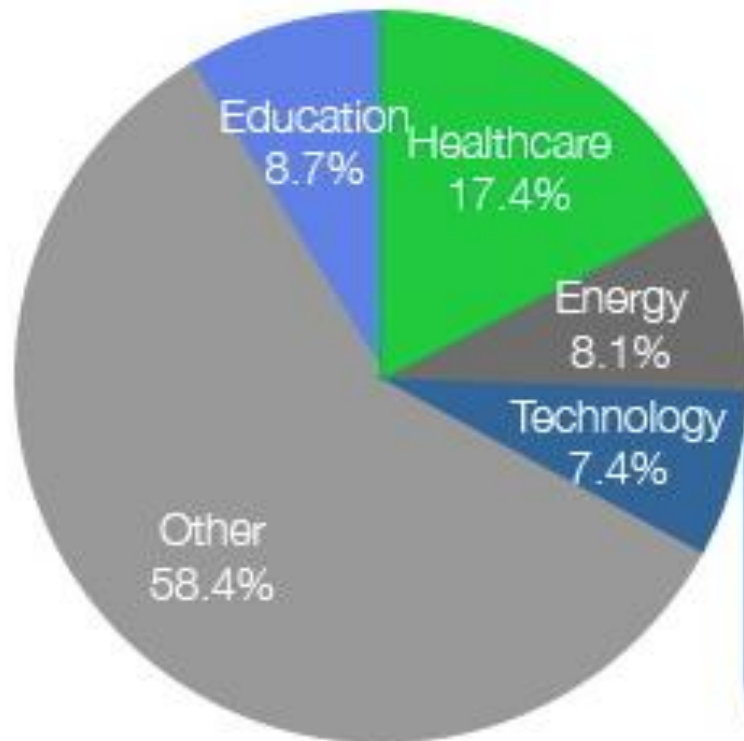


2017



\$ 4.5 trillion ————— 7% CAGR —————> \$6.4 trillion

Source: GSV: American
Revolution 2.0
<http://gsvadvisors.com>



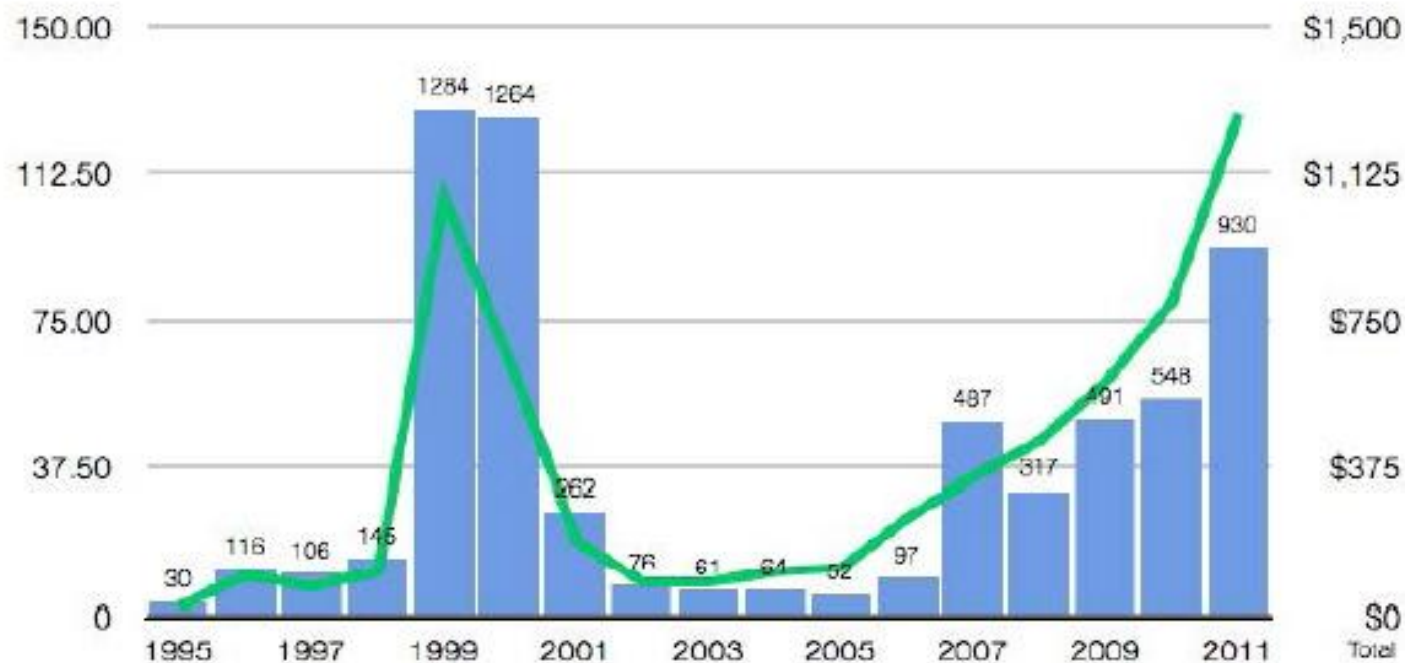
2010 Total GDP
\$14.9 Trillion
EDU: \$1.3 trillion



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*Where are Venture Capital Firms Making **Investments** Today in Education?*

— Transaction by Volume ■ Transaction Value by Sector (US\$ Millions)



Transaction Value By Sector

95-'00 01-'11

K-12	0	60	27	78	497	543	84	57	20	36	13	59	64	98	88	115	389	1205	1024
Higher Ed	0	3	3	3	25	21	4	2	3	5	2	6	11	15	27	30	44	965	1507
Corporate	0	0	1	0	38	11	3	0	1	0	1	3	1	2	3	3	4	516	154
Multi-Sector	1	1	0	1	4	1	1	1	0	0	1	1	4	9	11	17	27	216	538
Test Prep	0	0	0	0	2	3	0	0	1	0	0	0	4	1	1	3	4	43	164
Total	2	10	7	11	106	64	19	8	8	11	12	25	35	44	59	80	127	\$2944	3386

Source: GSV: American Revolution 2.0

<http://gsvadvisors.com>



Source: GSV: American Revolution 2.0
<http://gsvadvisors.com>



Technology Is Enabling:

- 1. Transition From Paper to Interactive Digital Content**
- 2. Ongoing Assessment & Feedback**
- 3. Expansion to Pervasive Blended Learning Models**
- 4. Personalized & Diversified Educational Pathways**



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What We Do

Our Platforms

Who We Are

Work For Us

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Ingram News Room

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Ingram adds Sesame Street e-book library solution to ipage | <http://t.co/WCKRPrAI>
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Bookshelf users now have more mobile options

Bookshelf users are now able to access their content on Android-powered mobile devices. Previously accessible via Apple's iPad, iPhone and iPad, the Android app opens Bookshelf to devices including the Samsung Galaxy Tab, the Kindle Fire and hundreds of smartphones.

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Current Registrations:
imscert.org

VitalSource achieves IMS conformance

News

APRIL 16, 2012 | 12:00 AM

Blackwell's—the leading provider of academic, professional and educational materials in the U.K.—chooses VitalSource® to power e-textbook solutions for their customers.

APRIL 11, 2012 | 12:00 PM

Leading South African bookseller Van Schaik selects Ingram's VitalSource® to power e-textbook offering to customers.

APRIL 03, 2012 | 0:00 AM



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Carnegie Learning



MyMathLab



Partnership for Assessment of
Readiness for College and Careers



What is iLearnNYC?

Personalized Instruction

Teachers can now supplement face-to-face instruction with online resources using blended learning models. Students are able to work at varying paces with teacher guidance at each step.

Expanded Opportunities

Students can get access to courses not currently offered in their school such as Advanced Placement, world languages, and credit recovery.

Increased Flexibility

Students can complete their coursework anywhere, anytime, from any computer with internet access, allowing for increased learning time and opportunities.

I want additional iLearnNYC information.

SHOW ME MORE

I need iLearnNYC technical assistance.

HELP ME



Log In To Your
iLearnNYC
Courses Here

LOGIN

[Is my system compatible?](#)

[Admin Console](#)

Note: Site accessible via DOE network computers only.

iZone



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WGU NEWS

- 📄 WGU President Testifies at Senate Hearing on Making College Affordable
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- 📄 WGU Featured in *The New York Times*
- 📄 CNN Spotlights WGU

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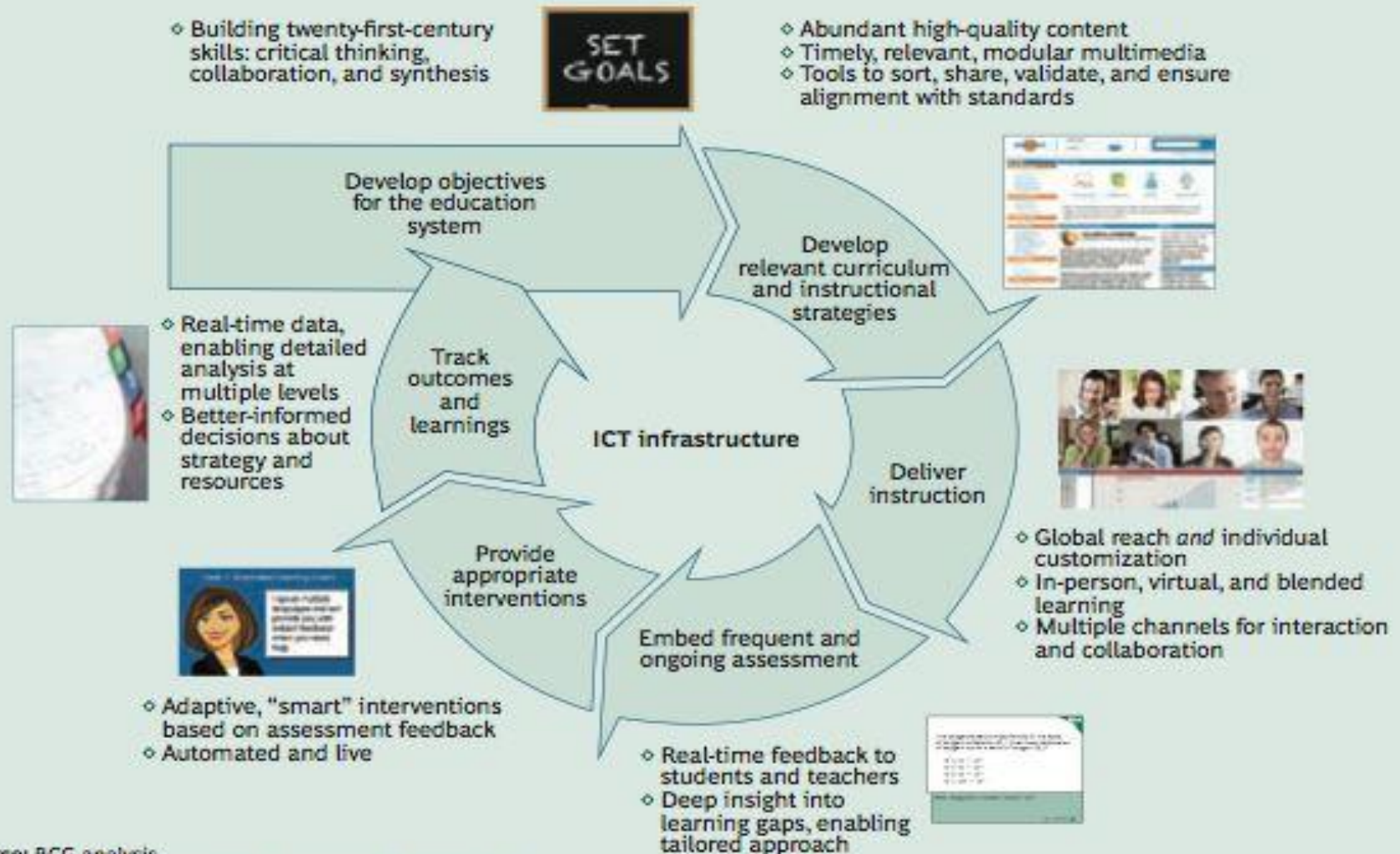
LEARN MORE →



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Smart ICT for the Education Revolution

Exhibit 4. Technology Enables a Closed-Loop Instructional System to Deliver Better Student Outcomes



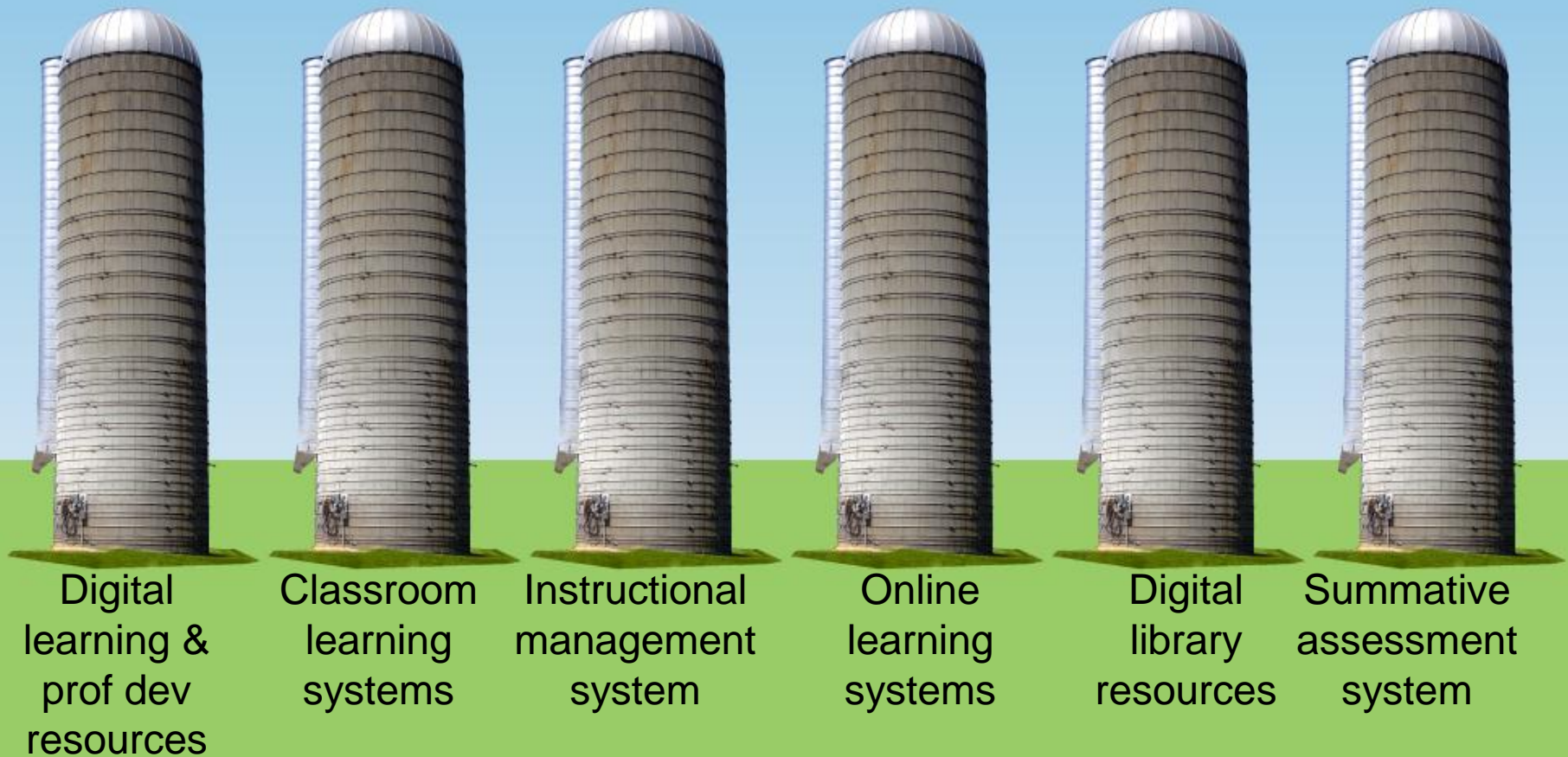
Source: BCG analysis.

Note: ICT is information and communications technology.

Source: BCG: Unleashing the Potential of Technology in Education

<http://www.bcg.com/documents/file82603.pdf>

The Whole is Not Equal to the Sum of the Parts





Source: GSV: American Revolution 2.0
<http://gsvadvisors.com>

Enable Content, Application Assessment & Data Interoperability



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Digital
learning &
prof dev
resources

Classroom
learning
systems

Instructional
management
system

Online
learning
systems

Digital
library
resources

Summative
assessment
system

Learning Tools Interoperability (LTI)

Learning Information Services (LIS)

An Open Foundation that Enables Seamless, Agile & Data-Rich Innovation

“Interoperable
Learning Network”
standards (IMS)

Just as W3C standards make interoperable exchange of text & graphics over the Internet easy, the IMS standards make exchange of information among educational applications easy.

World Wide Web standards (W3C)

Internet standards (IETF)



The Result



A flexible and responsive ICT infrastructure that can evolve in a modular fashion



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Interoperability at the Core!

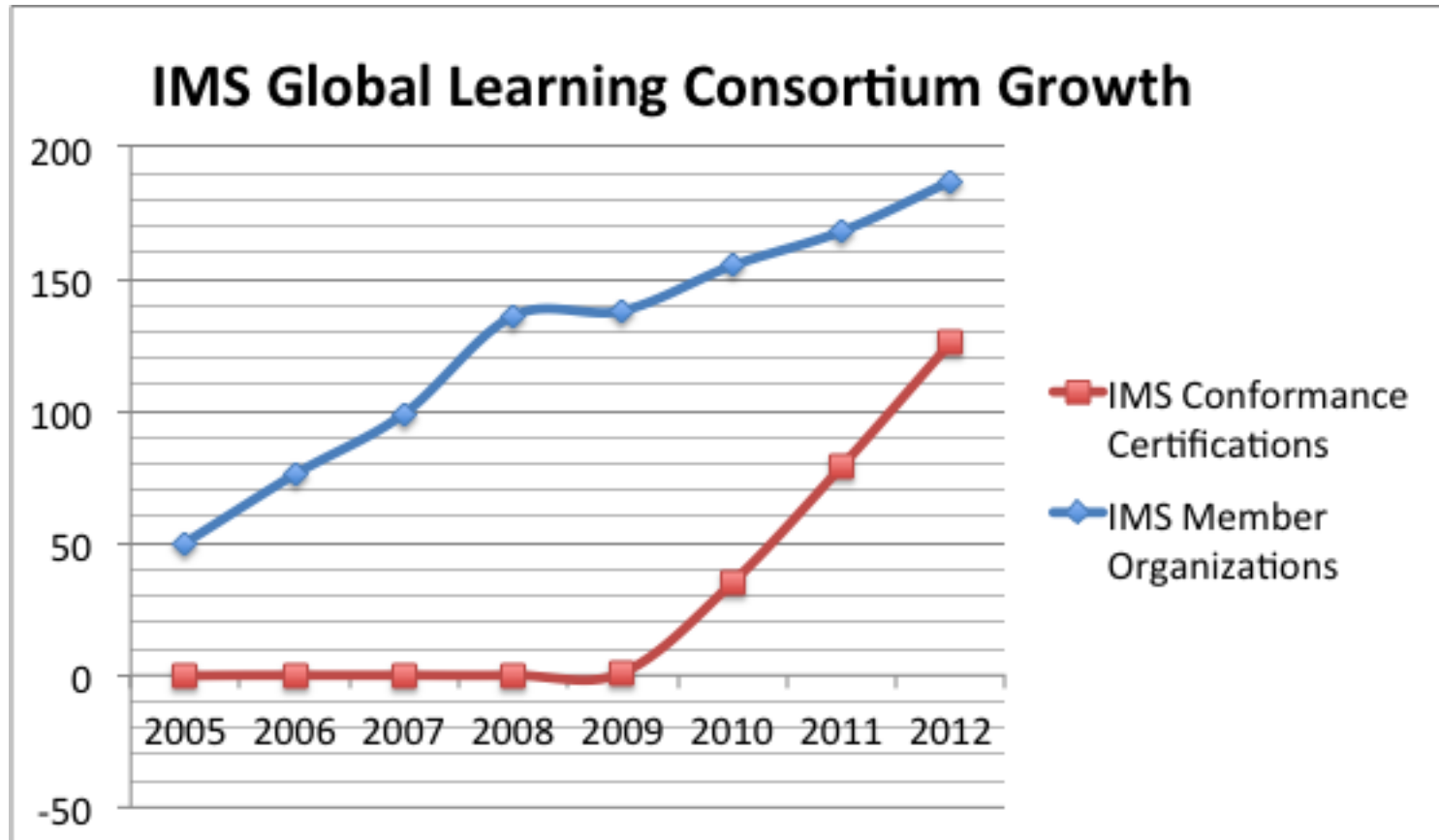
Modular, configurable, seamless, immersive



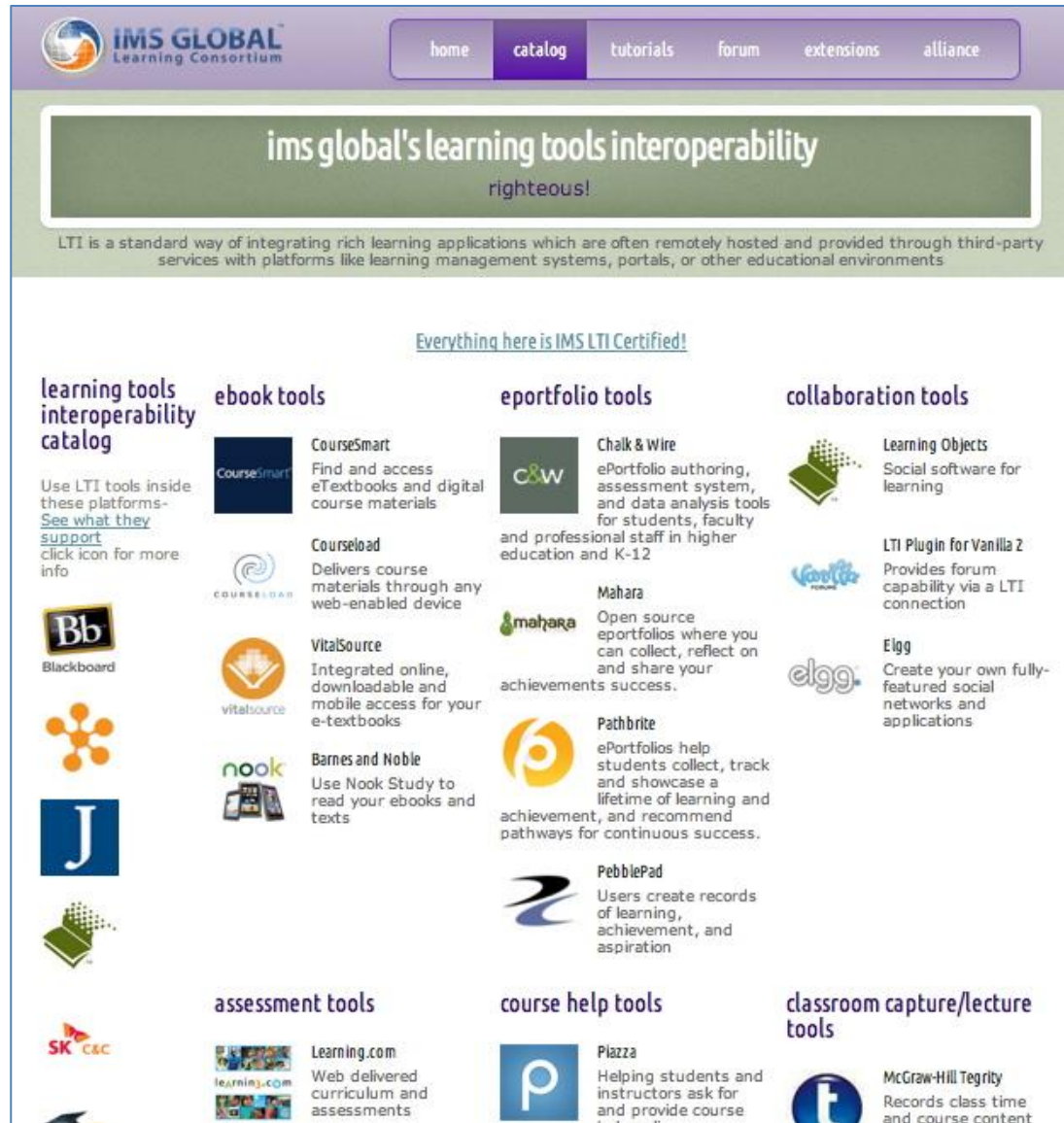


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The Education *Interoperability* Revolution!



Enabling Private Branded Standards- Based App Stores for Education Worldwide



The screenshot shows the IMS Global Learning Consortium website. At the top is a navigation bar with links: home, catalog, tutorials, forum, extensions, and alliance. Below this is a banner for 'ims global's learning tools interoperability' with the tagline 'righteous!'. A text box explains that LTI is a standard for integrating learning applications. Below the banner, a section titled 'Everything here is IMS LTI Certified!' lists various tool categories and their members:

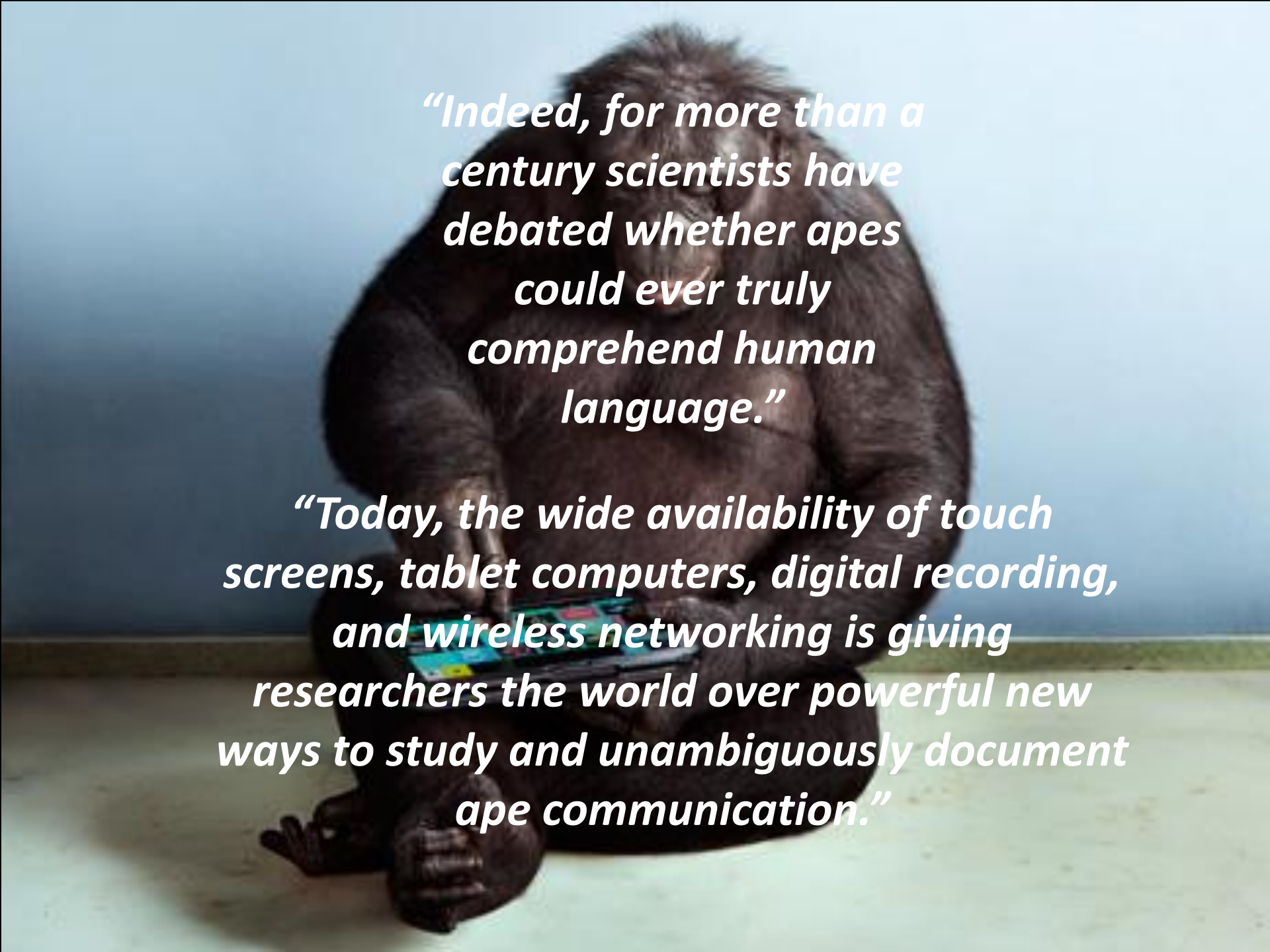
- learning tools interoperability catalog**: Use LTI tools inside these platforms- See what they support click icon for more info. (Includes icons for Blackboard, Canvas, J, and others)
- ebook tools**:
 - CourseSmart: Find and access eTextbooks and digital course materials
 - CourseLoad: Delivers course materials through any web-enabled device
 - VitalSource: Integrated online, downloadable and mobile access for your e-textbooks
 - Barnes and Noble: Use Nook Study to read your ebooks and texts
- eportfolio tools**:
 - Chalk & Wire: ePortfolio authoring, assessment system, and data analysis tools for students, faculty and professional staff in higher education and K-12
 - Mahara: Open source eportfolios where you can collect, reflect on and share your achievements success.
 - Pathbrite: ePortfolios help students collect, track and showcase a lifetime of learning and achievement, and recommend pathways for continuous success.
 - PebblePad: Users create records of learning, achievement, and aspiration
- collaboration tools**:
 - Learning Objects: Social software for learning
 - LTI Plugin for Vanilla 2: Provides forum capability via a LTI connection
 - Elgg: Create your own fully-featured social networks and applications
- assessment tools**:
 - Learning.com: Web delivered curriculum and assessments
- course help tools**:
 - Piazza: Helping students and instructors ask for and provide course help online
- classroom capture/lecture tools**:
 - McGraw-Hill Tegrity: Records class time and course content

<http://developers.imsglobal.org/catalog.html>



Measurement of Smart ICT for Education

1. **Richer Options for Faculty & Students:** Enable a greater selection of innovative tools and content within the academic enterprise (versus outside of it)
2. **Reduced Complexity:** Improved integration results in more efficient and effective user (instructor & learner) experiences
3. **Student Achievement:** Enable extraction of richer, actionable information on experiences and outcomes
4. **IT Efficiency:** Reduce cost and time to integrate new applications and content
5. **Connecting Institutional Systems with Direct-to-Consumer Systems:** Students and teachers must live in both worlds, easily

A chimpanzee is sitting on a light-colored, sandy or concrete ground. It is holding a tablet computer with both hands and looking at the screen. The chimpanzee has dark brown fur and is positioned in the center of the frame. The background is a plain, light blue wall.

“Indeed, for more than a century scientists have debated whether apes could ever truly comprehend human language.”

“Today, the wide availability of touch screens, tablet computers, digital recording, and wireless networking is giving researchers the world over powerful new ways to study and unambiguously document ape communication.”

Education Revolution!

“Indeed, for more than a century scientists have debated whether a personalized education could be delivered on mass while increasing academic rigor.”

“Today, the wide availability of touch screens, tablet computers, digital recording, and wireless networking is giving researchers the world over powerful new ways to study and unambiguously document the power of personalized education.”





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IMS Global Learning Consortium Announces Signing of General Permission Agreement with ISO/IEC JTC 1 SC 36

Agreement supports continuing expansion of IMS standards adoption to support digital learning across the globe

Lake Mary, Florida, USA and SMART on ICT 2012 International Open Forum, Seoul, Korea – 24 October 2012 – The IMS Global Learning Consortium (IMS Global) today announced signing of a general permission agreement with ISO/IEC to enable additional collaboration between IMS Global and ISO/IEC JTC 1 SC 36. This agreement follows from successful collaboration between SC 36 and IMS in enabling ISO/IEC versions of IMS Access for All (ISO/IEC 24751) and IMS Content Packaging (ISO/IEC 12785).

SC 36 is chartered to produce IT international standards and guidance in the learning, education and training markets. SC 36 promotes international consensus in standards development and adoption of quality standards.

"The IMS specifications have proven support in industry and are already implemented in many countries," commented Erlend Øverby, Chair of ISO/IEC JTC1/SC36. "Having IMS specifications as ISO standards benefits all and SC36 are looking forward to a close and fruitful collaboration in developing standards for the best of Learning, Education and Training for a global audience."

The collaboration with SC-36 benefits IMS member organizations by opening up a path for adoption of IMS work in additional regions of the world.

• Samsung CEO: "Samsung and benefit from ISO standards"

• ISO 20121 for sustainable events



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Thank You!

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<http://www.imsglobal.org/I3lc/>