Trends –
21st Century Learning

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We Believe the Education Game Is Changing

The Learner

Lives an Online Life

Attends a Disconnected Classroom

Facing Large Scale Disruption

Education System

In Need of a Bold and Urgent Response

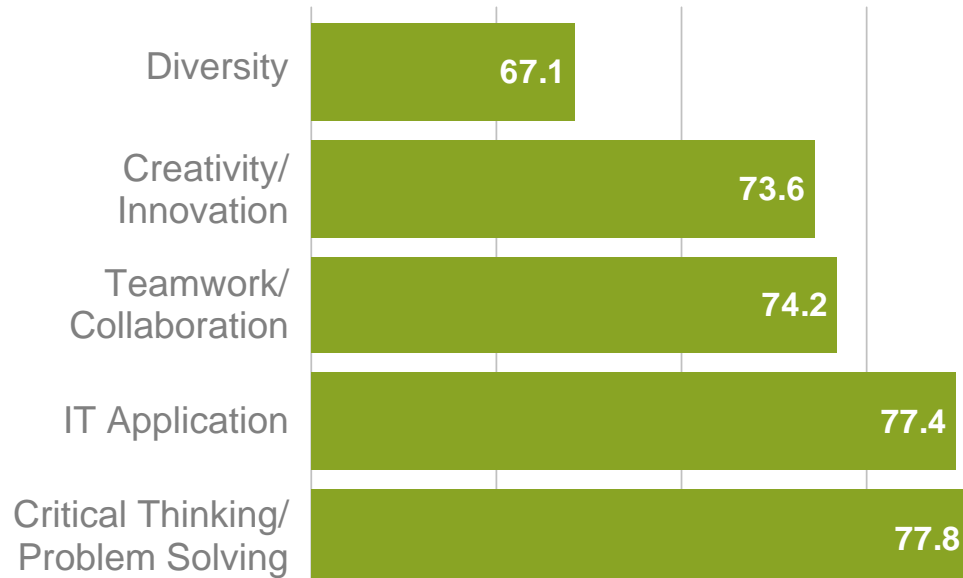## The Employer

Demands New 21st Century Skills

Demands Strong Basics

Employers are Adapting to the Challenges of Global Competition

> "The best employers the world over will be looking for the most creative, most innovative people on the face of the earth."

Tough Choices for Tough Times, 2007

% Employers Think 21st Century Skills Will Be More Important in Graduates over Next 5 Years*

Skill	%
Diversity	67.1
Creativity/Innovation	73.6
Teamwork/Collaboration	74.2
IT Application	77.4
Critical Thinking/Problem Solving	77.8

Results refer to US 2-year college and technical diploma graduates, but are similar for high school and 4-year college diploma graduates

Source: National Council on Economic Education, *Tough Choices or Tough Times?—The Report of the New Commission on the Skills of the American Workforce*, Washington, 2007; Workforce Readiness Project, 2006.

Creativity and Collaboration Are the Foundations of 21st Century Learning and a 21st Century Economy

Innovative Economies

A More Innovative Workforce with 21st Century Skills

Deep Expertise   Interdisciplinary Focus

Leading to…

Creativity   Team-Based Problem Solving

The Learner

Audience
Who I know

Expression
What I say

Publication
What I share

Avatars
What represent me

Profession
Where I work

Knowledge
What I know

Purchase
What and how I buy

Opinion
What I like

Certificates
Who can certify
my identity

Details
How and where
to join me

Hobby
What interests me

Reputation
What's said about me

iViva

Students Rapidly Adopt New Technologies

- US College freshmen spend $1,151 on technology

- Students spend more time on the Internet than any other media

- Students have 9 devices on average

- 93% of students own mobile phones

- 41% of students have MP3 players

Sources: National Retail Federation, 2005; Pew, 2007; Burst Media, 2007; Alloy College Explorer Study, 2007

Web 2.0 Enables Easy Information Access, Knowledge Sharing
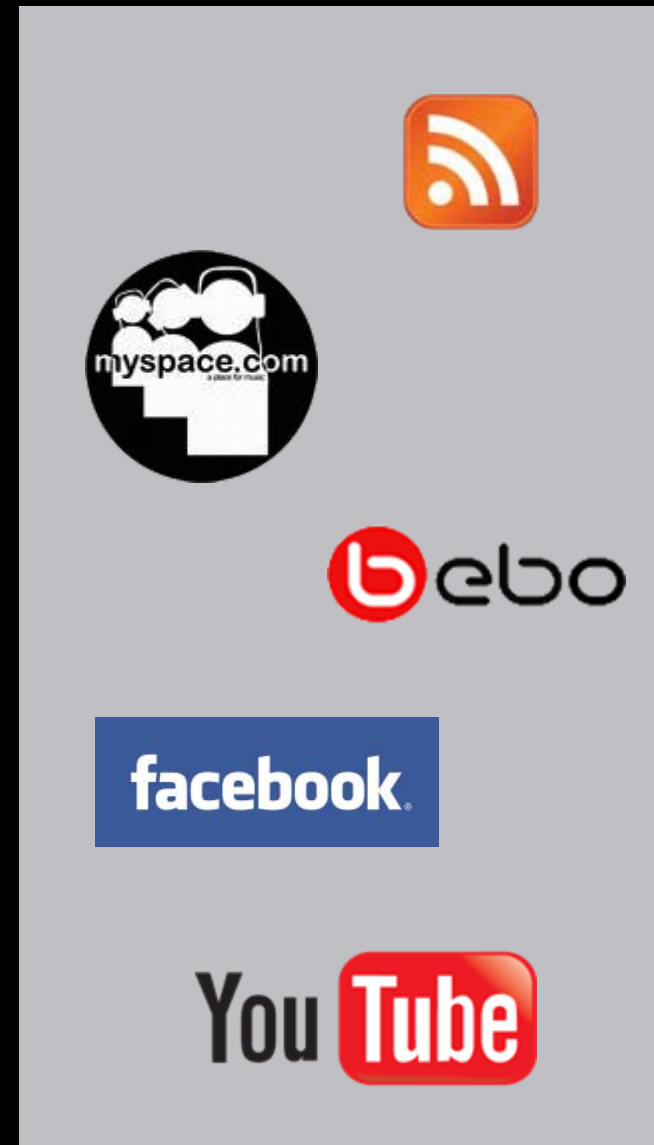
- MySpace adds 2.5M users a month

- Two blogs are created every second

- Wikipedia contains 2M articles

- Students spend 6.5 hours per week on social networking sites

- 70% use message boards to communicate with friends

- 61% talk online to people they've never met

- 56% of students e-mail or IM their professors for help with assignments

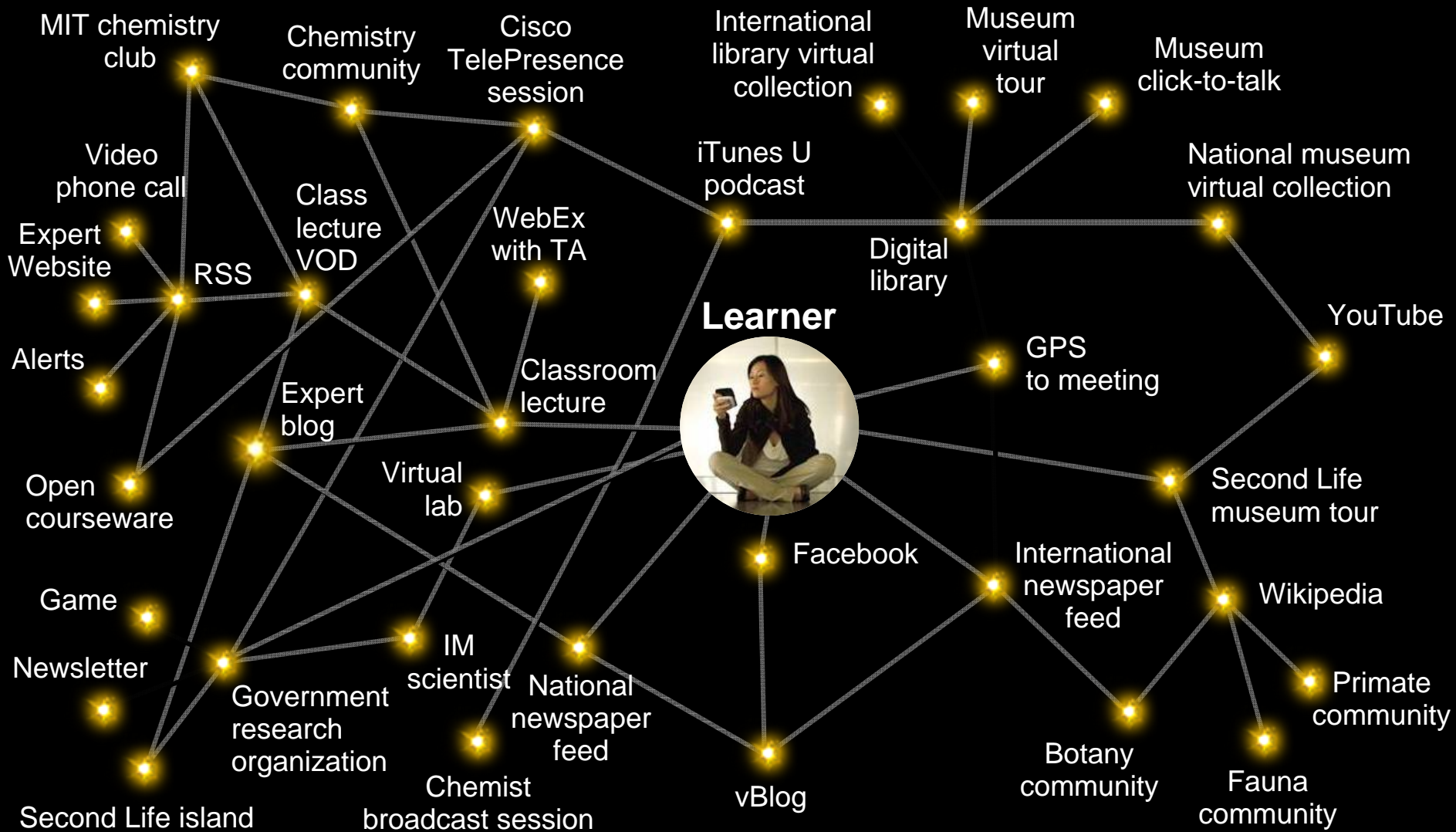Sources: Alloy, 2006; MySpace, 2007; Wikipedia, 2007, Technorati, 2006

Web 2.0: Quickly Adopted in the Education Environment

- Share information: blogs, wikis, RSS

- Create communities: Facebook, MySpace, Bebo

- User-generated content: YouTube

- Redefining ways students and researchers collaborate

- Changing how universities deliver content

Higher-education Example:
Lin, the "Biochem" Student

MIT chemistry club

Chemistry community

Cisco TelePresence session

International library virtual collection

Museum virtual tour

Museum click-to-talk

Video phone call

iTunes U podcast

National museum virtual collection

Expert Website

Class lecture VOD

WebEx with TA

Digital library

RSS

Learner

YouTube

Alerts

GPS to meeting

Classroom lecture

Expert blog

Virtual lab

Second Life museum tour

Open courseware

Facebook

International newspaper feed

Wikipedia

Game

IM scientist

Primate community

Newsletter

Government research organization

National newspaper feed

Botany community

Fauna community

Second Life island

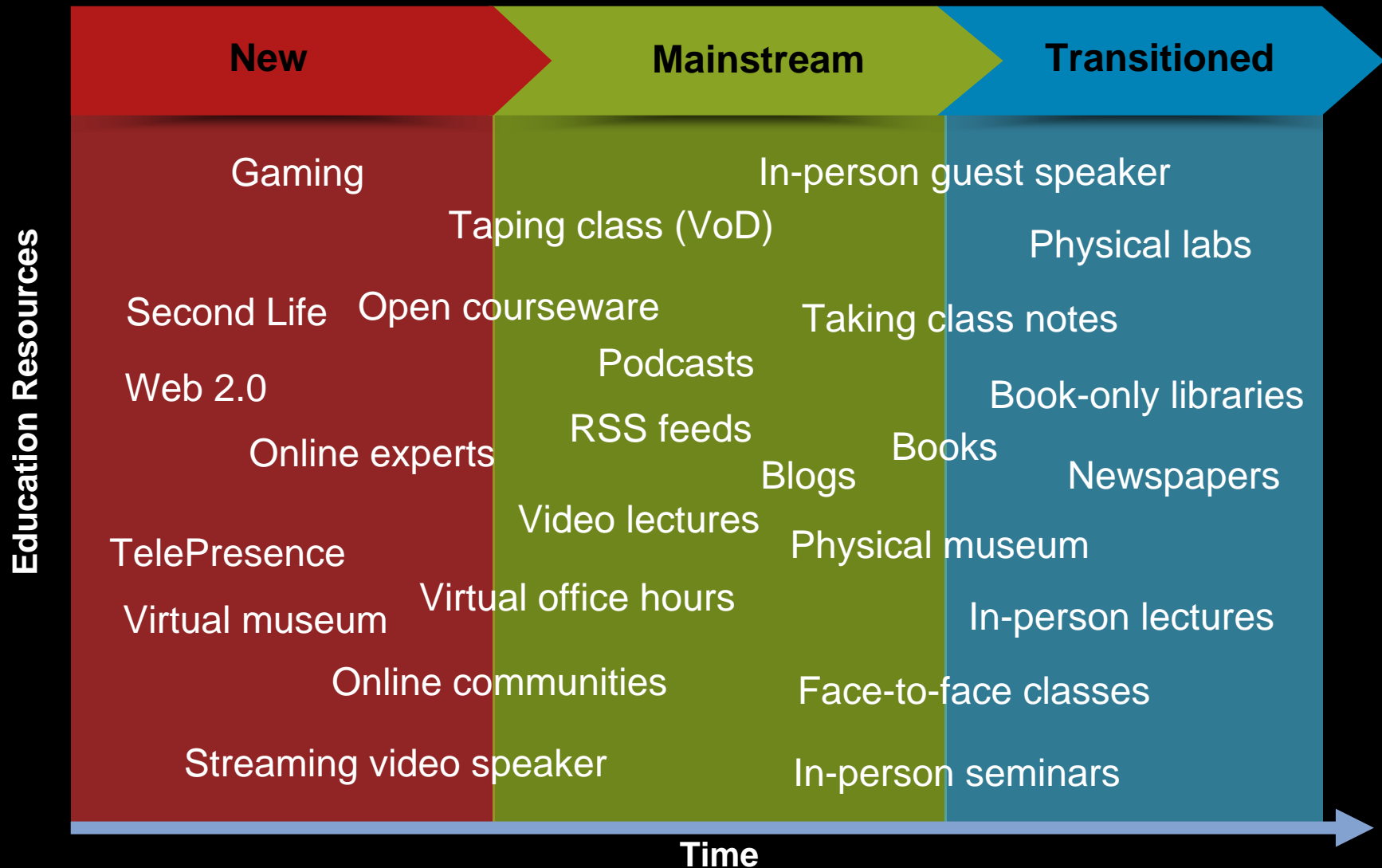Chemist broadcast session

vBlog

Responsible Learners

- Quality online content increases daily (Google Book Search)

- Open Courseware Consortium site: 2 million visits per month

- UC Berkeley: more than 2 million open content downloads in first year

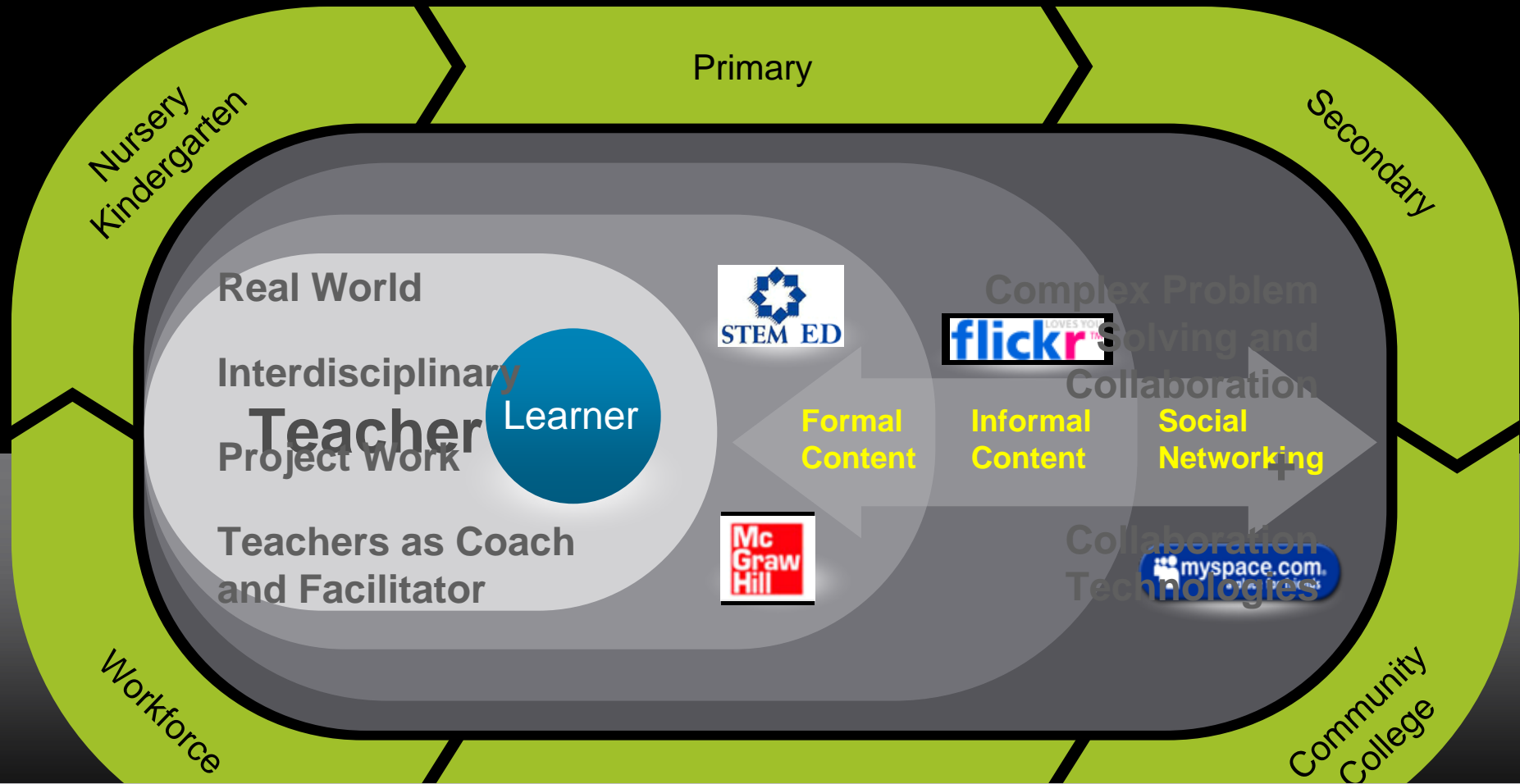- Internet accelerates student learning 2–3 times

Sources: Open Courseware Consortium, 2006; UC Berkeley, 2007;
Mike Smith, William & Flora Hewlett Foundation, 2006

Education Resources Are Rapidly Transitioning

New	Mainstream	Transitioned

Education Resources (vertical axis label)

Gaming

In-person guest speaker

Taping class (VoD)

Physical labs

Second Life   Open courseware

Taking class notes

Web 2.0

Podcasts

Book-only libraries

Online experts

RSS feeds

Books

Newspapers

Blogs

Video lectures

Physical museum

TelePresence

Virtual office hours

In-person lectures

Virtual museum

Online communities

Face-to-face classes

Streaming video speaker

In-person seminars

Time

21st Century Pedagogy:
How Learners Best Engage

Primary

Nursery Kindergarten

Secondary

Workforce

Community College

Real World

Interdisciplinary

Teacher

Learner

Project Work

Teachers as Coach and Facilitator

Complex Problem Solving and Collaboration

Formal Content

Informal Content

Social Networking

Collaboration Technologies

Knowledge Acquisition > Knowledge Deepening > Knowledge Creation

Source: Team Analysis and Robert B. Kozma

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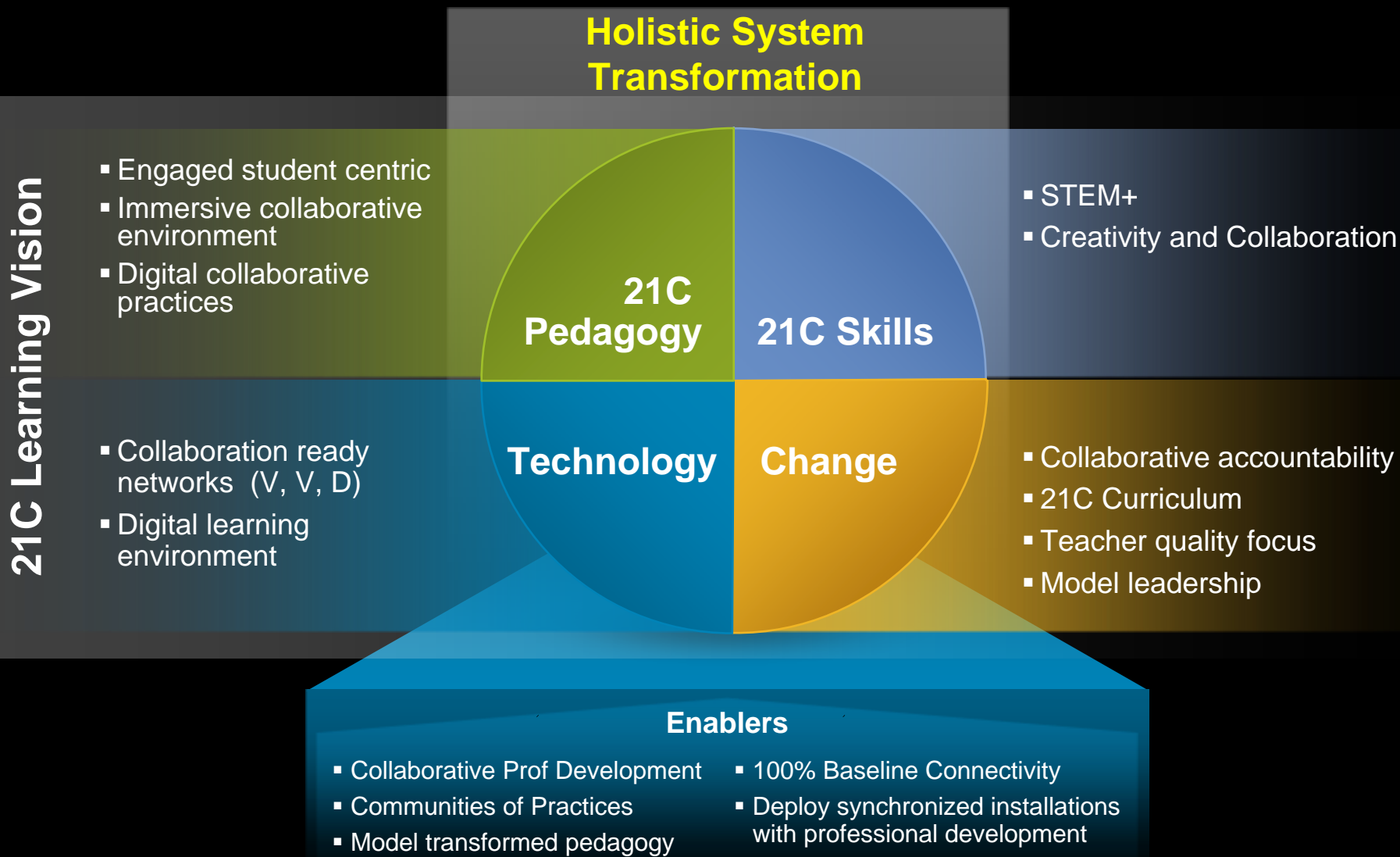
Demands Strong Basics

Education 3.0—a Paradigm Shift

Education 3.0

Achieved in Holistic Transformation (Vision)

21st Century Skills

21st Century Pedagogy

Enabled by Technology

Supported Through an Adapted Change Agenda (People)

Education 2.0

Education 1.0

21st Century Learning

Traditional Education Systems

Curriculum
Teachers
Accountability
Leadership
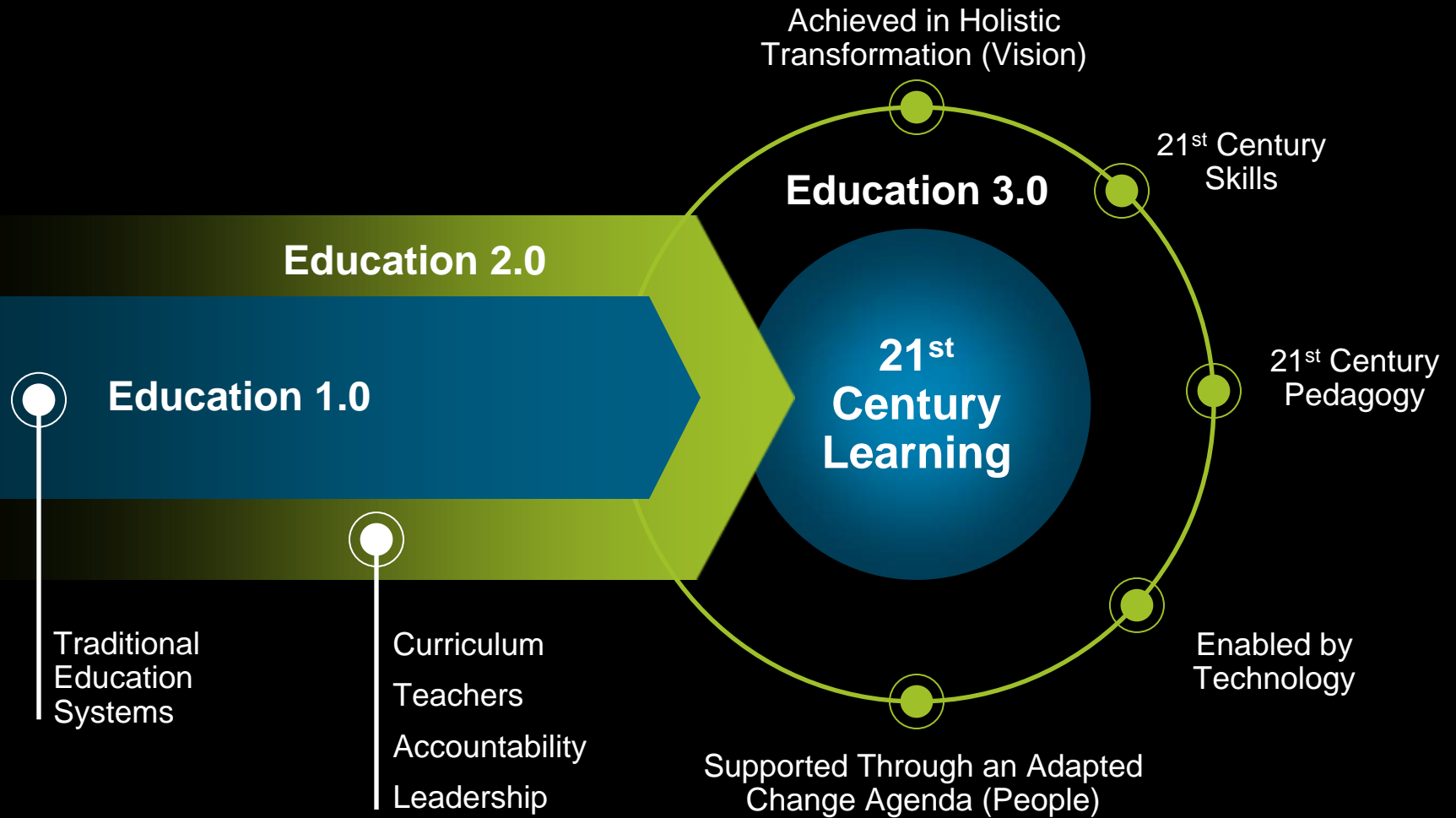
21st Century Skills:
What Learners Need to Know

Life Skills	21st Century Content	Core Subjects	Learning and Thinking Skills	ICT Literacy

21st Century Assessment

Partnership for 21st Century Skills

Develop Core Subjects to Create Deep Specialized Subject Knowledge	Place Special Emphasis on Science, Technology, Engineering, Math (STEM) Disciplines	Ensure Most Able Students Can Reach Higher Achievements in 21st Century and STEM Skills
1	**2**	**3**

Source: Developing a Framework for 21st Century Learning, Partnership for 21st Century Skills, April 21, 2007; team analysis

Education 3.0 Change Model

Holistic System Transformation

21C Learning Vision

- Engaged student centric
- Immersive collaborative environment
- Digital collaborative practices

- STEM+
- Creativity and Collaboration

21C Pedagogy

21C Skills

Technology

Change

- Collaboration ready networks (V, V, D)
- Digital learning environment

- Collaborative accountability
- 21C Curriculum
- Teacher quality focus
- Model leadership

Enablers

- Collaborative Prof Development
- Communities of Practices
- Model transformed pedagogy

- 100% Baseline Connectivity
- Deploy synchronized installations with professional development

Presents a Transformational Challenge to Leaders

	From: High Performing System (Ed 2.0)	To: Connected Learning (Ed 3.0)
Curriculum	Excellence in 'Core Subjects'	Excellence in 'Core Subjects' Plus 21st Century Skills
Assessment	Assessment of Traditional Skills in Traditional Ways	New Assessment Framework for 21st Century Skills
Pedagogy	Teacher Imparted Knowledge 'Acquisition'	Learner-Centric Knowledge 'Acquisition', 'Deepening', and 'Creation'*
Technology	Automated Processes, Devices, and Connectivity	Enabler of Better Teaching and Learning
Professional Development	Traditional and Formal Approach to Qualifications and Training	Ongoing Collaborative Learning in Teacher Communities

*Refers to the thinking of Robert Kozma

Paradigm Shift to 21st Century Learning…Right for Every System

Why Everyone?	What's Globally Consistent?	What's Locally Tailored?
Global Competition	Creativity and Collaboration Skills	National/Regional Competitiveness
Innovation: The Critical Driver of Productivity	Leadership to Drive Change	Basic Capacity Gaps
Talent Is Now a Global Market	Technology as an Accelerant	How to Sequence Your Path to 21st Century Learning

Different Problems at Different Stages in the Journey: Education 0.5

Building Basic Capacity Is the Priority Challenge for Many Developing World Systems

Mozambique
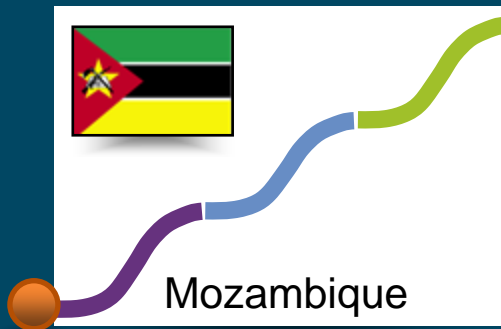
- Education 0.5
- Still to establish traditional education systems

	🇲🇿	🇮🇳	🇺🇸
Average Years of Schooling	1	5	12
Pupil-Staff Ratio	65	40	14
PC Penetration per 1000 People	1	1	76
GDP p.c.	$1,105	$3,072	$37,267
Population Aged 0–15	9M	351M	61M

Source: WDI, 2005; World Bank, 2005; Barro-Lee data set, 2000; UIS, 2005; ITU, 2004

Different Problems at Different Stages in the Journey: Education 2.0

Variability in Performance Is the Critical Challenge in the Developed World
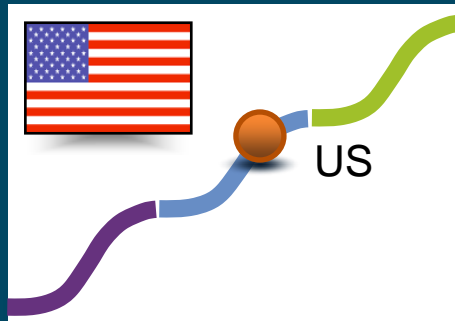
- Education 2.0
- System reform

Variability

Between Countries	Within Countries
High Performance/ Low Spend Systems • Korea • Finland	NAEP Scores in Grade 8 Mathematics, US 2005
Low Performance/ High Spend Systems • US • Italy	Students Not College-Ready; Cost of Remediation: US$1.7B

National Average (278) ▼

Massachusetts	14
Minnesota	13
Alabama	−15
DC	−32
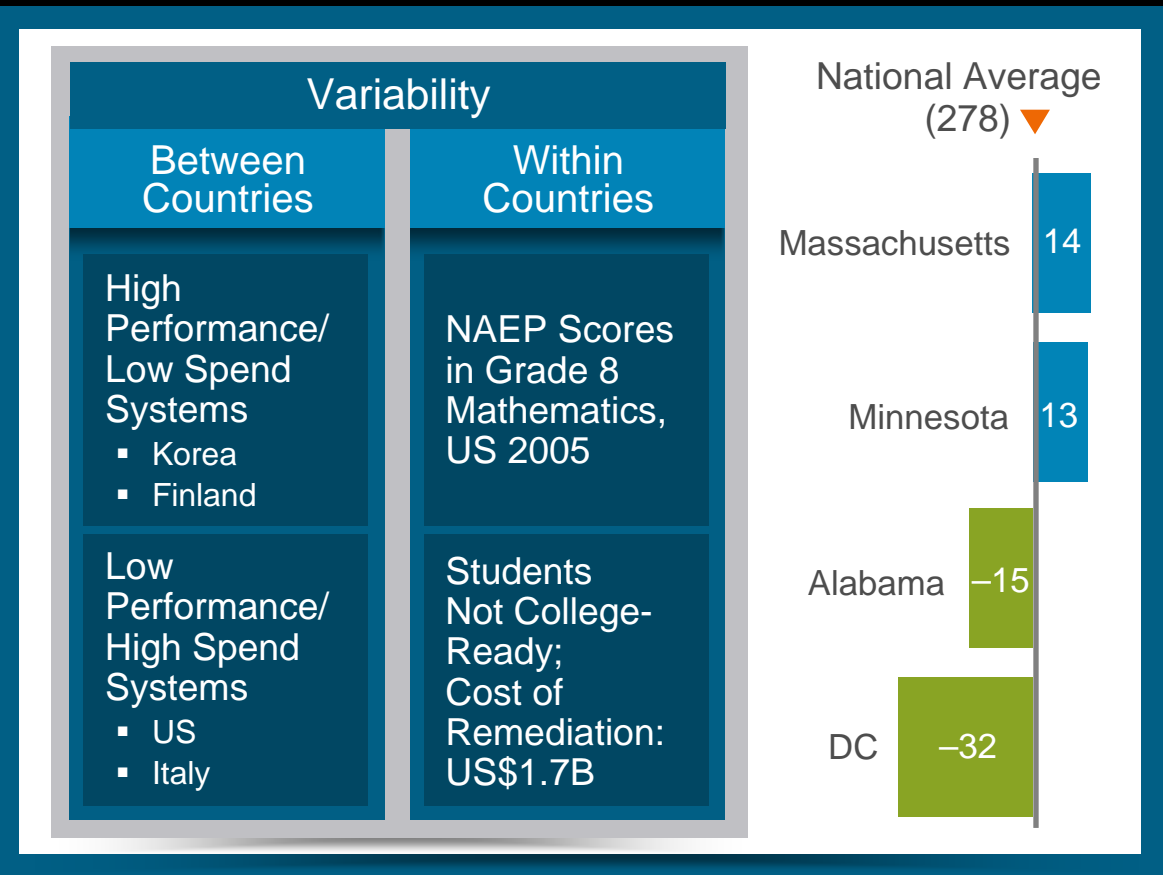
*Performance = average PISA score; spend = average per student US$PPP, 2001; OECD EducatGlance, 2004; PISA, 2003

21st Century Learning Is a Global Journey with Local Destinations

	Education Challenges	21 Learning Innovations
South Africa	▪ Africa-wide challenge: access to rural areas ▪ Struggle to build quality teacher capacity	▪ Royal Bafokeng Nation ▪ Installation of WiMax throughout the valley for 500,000 people ▪ Web broadcasts to put top teachers in class ▪ Online resources for testing and tutoring

India	▪ Dual challenge of access and quality
	    27M children out of school
	    89M children underachieving
		▪ EDUSAT's virtual classroom
		▪ Education to children in remote villages
		▪ Higher education to students without access to technical institutes
		▪ Training for teachers

United States	▪ Tech-savvy learners disengaged ▪ Poorer states lagging behind	▪ 21S in Louisiana and Mississippi ▪ Large tech investments in poor neighborhood schools ▪ Plus support from leading educational advisors
Singapore	▪ Global leader ▪ Didactic learning culture	▪ IT Masterplans, FutureSchools@SG ▪ Studies technology-enabled pedagogy ▪ To cultivate 21st century knowledge and skills

21st Century Technology:
The Accelerant of System Change

Collaboration
Phase 3

Organization
Phase 2

Automation
Phase 1

"My school is more efficient."

"I can view critical and whole system information."

"I can support transformational teaching and learning."

The Challenges We Face

- Education people are inherently resistant to change

- Too often we focus our discussions on technology and not enough on education problems and outcomes

- We must look through the right lens

   The education leader versus the network procurer

   The policy maker versus the practitioner

- Better understanding of where the real opportunities lie