Trends – 21st Century Learning

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We Believe the Education Game Is Changing

Facing Large Scale Disruption

In Need of a Bold and Urgent Response

The Learner
- Lives an Online Life
- Attends a Disconnected Classroom

Education System

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*

- 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.

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

Leading to...

Deep Expertise
Creativity
Interdisciplinary Focus
Team-Based Problem Solving
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
- Video phone call
- Expert Website
- Alerts
- Open courseware
- Game
- Newsletter
- Second Life island
- Government research organization
- Expert blog
- Virtual lab
- Chemical community
- Class lecture VOD
- WebEx with TA
- Classroom lecture
- Cisco TelePresence session
- International library virtual collection
- Museum virtual tour
- Museum click-to-talk
- National museum virtual collection
- National museum virtual collection
- National newspaper feed
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- Botany community
- Fauna community
- Primate community
- Government research organization
- IM scientist
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- Chemistry community
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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

- Gaming
- Second Life
- Web 2.0
- Online experts
- TelePresence
- Virtual museum
- Streaming video speaker

- Taping class (VoD)
- Open courseware
- Podcasts
- RSS feeds
- Video lectures
- Virtual office hours
- Online communities

- In-person guest speaker
- Physical labs
- Taking class notes
- Book-only libraries
- Blogs
- Physical museum
- Books
- Newspapers
- Face-to-face classes
- In-person seminars
- In-person seminars

Time
21st Century Pedagogy: How Learners Best Engage

Knowledge Acquisition > Knowledge Deepening > Knowledge Creation

Source: Team Analysis and Robert B. Kozma
We Believe the Education Game Is Changing

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Education 3.0—a Paradigm Shift

Achieved in Holistic Transformation (Vision)

Education 3.0

21st Century Skills

21st Century Pedagogy

Enabled by Technology

21st Century Learning

Supported Through an Adapted Change Agenda (People)

- Education 2.0
- Education 1.0

- Traditional Education Systems
- Curriculum
- Teachers
- Accountability
- Leadership

- 21st Century Pedagogy
- 21st Century Skills
- Enabled by Technology
21st Century Skills: What Learners Need to Know

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

Source: Developing a Framework for 21st Century Learning, Partnership for 21st Century Skills, April 21, 2007; team analysis
Education 3.0 Change Model

21C Learning Vision

- Engaged student centric
- Immersive collaborative environment
- Digital collaborative practices
- Collaboration ready networks (V, V, D)
- Digital learning environment

21C Pedagogy

- 21C Skills
- Technology
- Change

Enablers

- Collaborative Prof Development
- Communities of Practices
- Model transformed pedagogy
- 100% Baseline Connectivity
- Deploy synchronized installations with professional development

Holistic System Transformation

- STEM+
- Creativity and Collaboration
- Collaborative accountability
- 21C Curriculum
- Teacher quality focus
- Model leadership

21C Learning Vision

21C Skills

Change

Technology

21C Pedagogy

Enablers
## Presents a Transformational Challenge to Leaders

<table>
<thead>
<tr>
<th>From: High Performing System (Ed 2.0)</th>
<th>To: Connected Learning (Ed 3.0)</th>
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</thead>
<tbody>
<tr>
<td><strong>Curriculum</strong></td>
<td>Excellence in ‘Core Subjects’</td>
</tr>
<tr>
<td></td>
<td>Assessment of Traditional Skills in Traditional Ways</td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
<td>Teacher Imparted Knowledge ‘Acquisition’</td>
</tr>
<tr>
<td><strong>Pedagogy</strong></td>
<td>Automated Processes, Devices, and Connectivity</td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td>Traditional and Formal Approach to Qualifications and Training</td>
</tr>
<tr>
<td><strong>Professional Development</strong></td>
<td>Ongoing Collaborative Learning in Teacher Communities</td>
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*Refers to the thinking of Robert Kozma*
Paradigm Shift to 21st Century Learning…Right for Every System

Why Everyone?
- Global Competition
- Innovation: The Critical Driver of Productivity
- Talent Is Now a Global Market

What’s Globally Consistent?
- Creativity and Collaboration Skills
- Leadership to Drive Change
- Technology as an Accelerant

What’s Locally Tailored?
- National/Regional Competitiveness
- Basic Capacity Gaps
- 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

- **Education 0.5**
- Still to establish traditional education systems

<table>
<thead>
<tr>
<th></th>
<th>Mozambique</th>
<th>India</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Years of Schooling</td>
<td>1</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Pupil-Staff Ratio</td>
<td>65</td>
<td>40</td>
<td>14</td>
</tr>
<tr>
<td>PC Penetration per 1000 People</td>
<td>1</td>
<td>1</td>
<td>76</td>
</tr>
<tr>
<td>GDP p.c.</td>
<td>$1,105</td>
<td>$3,072</td>
<td>$37,267</td>
</tr>
<tr>
<td>Population Aged 0–15</td>
<td>9M</td>
<td>351M</td>
<td>61M</td>
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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

*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

<table>
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<tr>
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<tr>
<td>- Africa-wide challenge: access to rural areas</td>
<td>- Dual challenge of access and quality 27M children out of school 89M children underachieving</td>
<td>- Tech-savvy learners disengaged Poorer states lagging behind</td>
<td>- Global leader Didactic learning culture</td>
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<tr>
<td>- Struggle to build quality teacher capacity</td>
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#### 21 Learning Innovations

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<td>- Royal Bafokeng Nation</td>
<td>- EDUSAT’s virtual classroom Education to children in remote villages Higher education to students without access to technical institutes Training for teachers</td>
<td>- 21S in Louisiana and Mississippi Large tech investments in poor neighborhood schools Plus support from leading educational advisors</td>
<td>- IT Masterplans, FutureSchools@SG Studies technology-enabled pedagogy To cultivate 21st century knowledge and skills</td>
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21st Century Technology: The Accelerant of System Change

**Automation**
Phase 1

“My school is more efficient.”

**Organization**
Phase 2

“I can view critical and whole system information.”

**Collaboration**
Phase 3

“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