Charting our Transition to “Interactive Digital Textbooks”

March 29, 2012
LEAD Commission Overview

Objectives

◆ Assess where we are now
◆ Identify opportunities where technology can drive improvement
◆ Understand precedent digital transitions in other sectors
◆ Compare the U.S. internationally
◆ Develop “blueprint” for digital learning
◆ Build collective will to act

Deliverables

◆ November 2012 publication and dissemination
◆ Set of short presentations, videos and accompanying reports and materials
◆ Website as ongoing portal for information on technology in education
**TV Programming Choices in 1966**

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<th>Day</th>
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<th>Network</th>
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*TV Guide* - TV NEWS BULLETINS: Too many and too soon? See Page 3

*Local Programs - May 8-14*
Programming Choices Today

Channels & Packages

DISH Network

Premium Movie Packages

Sports Networks

America's Top 100 with HD

America's Top 200 with HD

Local Networks

Premium Channel Details

DISH PLATINUM

HBO

Sundance

Netflix

Hulu

Redbox

amazon.com

Google TV

FanCast
Precedent Digital Transformations

Past

News Media

Current

Music
Historical Education Perspectives

Early Middle Ages

Medieval Europe

18th and 19th Century America

European Output of Books 500-1800

- Manuscripts
- Printed Books

*Excludes Southern Europe, Afghanistan, Inner Asia, South Africa.
Historical Education Perspectives

| Early Middle Ages | Medieval Europe | 18th and 19th Century America | 20th and 21st Century America |

![Image of a person operating a film projector.](image1)

![Image of a person carrying large backpacks.](image2)
Current State of U.S. Education

- The U.S. spends $7 billion per year on K-12 textbooks, but many students still use 7-10 year-old books with outdated material
- South Korea is beginning the transition to all digital textbooks in 2015
- Singapore plans to train every teacher to teach online and provide online learning in 100% of secondary schools
“By harnessing the power of technology in the classroom, we equip our educators with the tools they need to prepare our next generation of doers and thinkers for the jobs of tomorrow.”

- President Obama, Digital Learning Day (February 1, 2012)

“Today, I want to challenge everyone in the space – companies, government officials, schools and teachers – to do their part to make sure that every student in America has a digital textbook in the next five years.”

- FCC Chairman Genachowski, Digital Learning Day (February 1, 2012)

“Do we want kids walking around with 50-pound backpacks and every book in those backpacks costing 50, 60, 70 dollars and many of them being out of date? Or, do we want students walking around with a mobile device that has much more content than was even imaginable a couple years ago and can be constantly updated? I think it's a very simple choice.”

- Department of Education Secretary Duncan, Digital Learning Day (February 1, 2012)
Comfort with Change

“No one likes change except babies in diapers”
- Barbara Johnson

“A good hockey player plays where the puck is. A great hockey player plays where the puck is going to be”
- Wayne Getzky
A Challenge to Cherished Beliefs

“Who the hell wants to hear actors talk?”
– H.M. Warner, Warner Brothers, 1927

“The world potential market for copying machines is 5000 at most.”
– IBM to the founders of Xerox, 1959

“The phonograph has no commercial value at all.”
– Thomas Edison, 1880s

“We don’t like their sound, and guitar music is on the way out.”
– Decca Recording Co, rejecting the Beatles, 1962

Our Own Cherished Beliefs…

- Hour-long classes & seat time requirements
- Students grouped by age
- Paper textbook as primary supplement
- Limited testing feedback and reports (midterm and final)
- Lecture-based teaching
Imperative to Adapt

**Late to Adapt**
- RCA
- Kodak
- Sears
- Firestone
- Smith Corona
- Memorex
- USS
- Polaroid
- Blockbuster Video

**Adapted and Evolved**
- Tandy
- Nucor
- IBM
- Nokia
- Corning
- P&G
- Goodrich
- Grace
- Rockwell
- Dupont
- FMC
- Harris

Former franchise leaders that failed or had a near death experience

These companies are on average 133 years old... each began in a different business than it is in today
Students are “digital natives”
- Technological competency is a workplace requirement
- Potential tipping point in digital adoption
- Measuring impact on student outcomes
Digital Learning Ecosystem

- Ability to create modular, interactive, and personalized digital learning content (not simply digital versions of paper books)
- Potential for new business models
- Encouraging investment and innovation

Attendees:
- Dan Caton, McGraw-Hill
- Will Ethridge, Pearson
- Jose Ferreira, Knewton
- Bill Goodwyn, Discovery Education
- Joel Klein, News Corp
- Matt MacInnis, Inkling
- Osman Rashid, Kno
- Dan Rosenweig, Chegg
- Linda Zecher, Houghton Mifflin Harcourt
Digital Learning Ecosystem

Opportunities and Challenges

- Growing broadband access (e.g., E-Rate)

- Access both at school and at home
  - Unevenly distributed across student populations (e.g., less than 50% of low-income students have broadband access)

Attendees

- Dan Hesse, Sprint
- Philipp Humm, T-Mobile
- Dominic Orr, Aruba Networks

INTERNET ADOPTION
(Percent of U.S. Households)


- Internet
- Broadband

Broadband Access Target in 4 years 98%

19% 26% 42% 50% 55% 51% 62% 69% 71% 68%
Digital Learning Ecosystem

Opportunities and Challenges

- Rapidly advancing device capabilities and declining unit costs
- Uncertainty around capital and training requirements
- Access both at school and at home

Attendees

- Tim Baxter, Samsung
- John Couch, Apple
- Reed Hundt, Intel
Digital Learning Ecosystem

**Opportunities and Challenges**

- Government agencies and others actively working to ensure access and affordability
- Adoption of Common Core standards
- How to address “seat-time” requirements, state adoption, course scheduling, categorical funding for textbooks and other policies

**Attendees**

- Chairman Julius Genachowski, Federal Communications Commission
- Secretary Arne Duncan, Department of Education
Digital Learning Ecosystem

- **Rocketship Education**
  - Opened first hybrid school in 2007
  - Individualized online instruction combined with classroom teaching
  - Online Learning Lab

- **Florida Virtual School**
  - State-sponsored virtual school
  - Helped statewide teacher and budget crises and strengthened curriculum offerings

- **Stanford Online High School**
  - Education Program for Gifted Youth (EPGY)
  - Live-streaming lectures
  - Virtual interactions with teacher, classmates

### Opportunities and Challenges

- ✔ Increasing acceptance of new teaching & learning models and technologies such as digital textbooks
- ✔ Online and blended learning are commonplace in higher education and lifelong learning
- ✗ Ensuring adequate training and support

### Attendees

- Tom Luna, Idaho Dept. of Education
Digital Learning Challenges

- How do we accelerate the creation of modular, interactive, and personalized digital learning content (not simply digital versions of paper books)?...How do we measure their effectiveness?

- What are the most effective methods for providing affordable broadband access both at school and at home?

- What new business models could allow students and teachers to utilize devices and other technologies now and in future product cycles?

- How do we ensure access and affordability and address regulations to enable and encourage adoption?

- What training and ongoing support is necessary for acceptance of new teaching & learning models?