We are in a chameleon-esque era, able to change but not able to become.

Jean Baudrillard, 2002
Outline of presentation

Changing: Five trends

Becoming: Five values to preserve
We are presented with a once in (several) generation opportunity to remake and rethink education.

What we do here will reverberate far into the future.
Changing

Becoming
Five Trends

1. Digitization
Digital: Connected
To understand what tomorrow’s education system will look like, we have to understand the **architecture of information** today:

how is it created
how is it shared
how is it iterated
how is it controlled?
An education system that fails to emulate the characteristics information in an era is doomed to fail.

Information Today Is:
+ Open
+ Distributed
+ Scalable
+ Social
+ Generative
+ Networked
+ Self-organized
+ Adaptive
+ Global
Making the world’s knowledge relatable
Knowledge development, learning, is (should be) concerned with learners **understanding relationships**, not simply memorizing facts.

i.e. naming nodes is “low level” knowledge activity, understanding node connectivity, and implications of changes in network structure, consists of deeper, coherent, learning
Knowledge in pieces

diSessa, 1993
Digital: Complex
What we are seeing is the complexification of higher education

Learning needs are complex, ongoing

Simple singular narrative won’t suffice going forward

The idea of the university is expanding and diversifying
Digital: Open
NEWS RELEASES @ TCC

TIDEWATER COMMUNITY COLLEGE PARTNERS WITH LUMEN LEARNING TO OFFER TEXTBOOK-FREE DEGREE

HAMPTON ROADS, Va. (March 14, 2013) — Tidewater Community College will launch a pilot project this fall aimed at easing the pain of soaring textbook costs for college students.

Partnering with Lumen Learning, a Portland, Ore.-based company that helps educational institutions integrate open...
Digital: Data
“The world is one big data problem”

Gilad Elbaz
Maturity of Learning Analytics Deployment

Team/Organizational Impact

Limited

Aware

- Basic Reports
- Log Data

Experimentation

- Drill Down Reports
- Sample Dashboards

Organization

- Students
- Faculty

Organizational Transformation

- Predictive Models
- Personalized Learning
- Measured by Impact & Organizational Strategy

Sector Transformation

- Data Sharing Capabilities
- Innovation
- Open Data
- Sector-wide Agility
What will LA do for education

Add a new research layer
Personalization
Optimization (move from negative orientation)
Organizational insight
Improved decision making
New models of learning
Increase competitiveness
Improve marketing/promotion/recruitment
Five Trends

2. Integrated system to ecosystem
Control of university:
decline of end-to-end integrated system
Ed-tech startups

With transformations already underway in news, music, videos/movies, startup gold rush now turning focus to education
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Global Market Size</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Global Education Expenditure</td>
<td>$4,450.9 B</td>
<td>$5,508.7 B</td>
<td>7%</td>
<td>$6,372.5 B</td>
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<tr>
<td>K-12</td>
<td>$2,227.0 B</td>
<td>$2,625.6 B</td>
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<td>$2,930.3 B</td>
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<tr>
<td>Postsecondary</td>
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<td>$1,883.5 B</td>
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<td>$2,196.9 B</td>
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<td>Corporate &amp; Govt. Learning</td>
<td>$356.6 B</td>
<td>$449.3 B</td>
<td>8%</td>
<td>$524.0 B</td>
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<tr>
<td>eLearning</td>
<td>$90.9 B</td>
<td>$166.5 B</td>
<td>23%</td>
<td>$255.5 B</td>
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<tr>
<td>K-12 eLearning</td>
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<td>$39.0 B</td>
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<td>$69.0 B</td>
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<td>Higher Ed eLearning</td>
<td>$48.8 B</td>
<td>$95.4 B</td>
<td>25%</td>
<td>$149.0 B</td>
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<tr>
<td>Corporate eLearning</td>
<td>$25.5 B</td>
<td>$32.1 B</td>
<td>8%</td>
<td>$37.5 B</td>
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<tr>
<td>For-Profit Postsecondary</td>
<td>$96.1 B</td>
<td>$146.1 B</td>
<td>15%</td>
<td>$193.2 B</td>
</tr>
</tbody>
</table>

*Education Sector Factbook, 2012*
3. New learner profiles
Enrolment: “perfect storm of challenges ahead”

University Business, January 2015
The profile of today’s college-going population looks much different than it did decades ago, when the average student was a fresh-faced 18-year-old moving directly from high school to campus. Students today are older, more experienced in work, and more socioeconomically and racially diverse than their peers of decades past.
Student profiles

Diversifying
(OECD)
Less than 50% now full time
(US Census Bureau)

http://www.oecd.org/edu/skills-beyond-school/EDIF%202013--N%C2%B015.pdf
Favours women over men
More learners as % (up to 60%)
Average entrance age increasing
Top three countries for entering students:
  China, India, USA
Traditional science courses waning in popularity
Greater international student

OECD 2013
ONLINE EDUCATION

The average undergrad getting an online degree is older

MARLENE HABIB
Special to The Globe and Mail
Published Tuesday, Nov. 18 2014, 5:00 AM EST
Last updated Tuesday, Nov. 18 2014, 11:48 AM EST

As Jason Nixon watches his twin seven-year-olds kick their way through karate class, the dad, husband, politician and champion for the homeless can often be seen booting up his computer – to work toward earning his bachelor of commerce degree through Alberta’s Athabasca University.

At 34, Mr. Nixon possesses many of the traits of the typical Canadian taking an undergrad program online – he’s older than the average early-20s student attending university in person, has been working for years, and has a growing family.
Regional challenges: North America

Income inequality: “The defining challenge of our time”
4. Alternative credentialing
Colleges Reinvent Classes to Keep More Students in Science

By RICHARD PÉREZ-PÉÑA  DEC. 26, 2014
FACULTY

CORE CONTENT

LEARNER
Parallel developing partners: Adaptive and personalized learning

<table>
<thead>
<tr>
<th>Platform</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knewton</td>
<td>Pearson</td>
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<tr>
<td>Smart Sparrow</td>
<td>McGraw-Hill</td>
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<tr>
<td>Desire2Learn</td>
<td>adaptcourseware</td>
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<tr>
<td>LoudCloud</td>
<td>CMU OLI</td>
</tr>
</tbody>
</table>
Granularization of assessment

Cracking the credit hour
(New America Foundation)

Badges
(Mozilla & others)

http://newamerica.net/publications/policy/cracking_the_credit_hour
http://openbadges.org/
Certificates

Fastest growing form of credentialing (800% increase in 30 years)

Industry-facing

Carnevale, Rose, Hanson 2012
Competencies

Competency-based degrees
(Chronicle, 2014)

Prior learning assessment
(Insider Higher Ed, 2012)

http://chronicle.com/article/Competency-Based-Degrees-/144769/
http://www.insidehighered.com/news/2012/05/07/prior-learning-assessment-catches-quietly
5. University relationship to society
International/global focus

Credit harmonization
Learner mobility
Global competition
International brand development
Shifts on learning views

Skills gap
Life long learning
Learning to get a job
Personal learning (for the joy of it)
Becoming
Changing
The best time to change is when things are already changing
Five Values to Preserve

1. Human factor
Student experience

At all levels: preparation, entrance, career

(Spanier, 2010)
Five Values to Preserve

2. Regional economic/work/life impact
Could a Private University Have Made a Difference in Detroit?

Pittsburgh has Carnegie Mellon. In Cleveland, there’s Case Western Reserve. What if there had been, say, a Henry Ford University in Detroit?

JUSTIN POPE  |  JUL 27 2013, 9:09 AM ET

Detroit's bankruptcy filing last week and the decades of decline that preceded it have been a predictable political and historical Rorschach test. The right blames the city’s demise on moral failures and weak character -- the banana-republic-caliber corruption and fiscal fecklessness of its politicians, the greed of its unions, the spinelessness of automobile executives who gave into them. To the
Interaction-based work represents a significant proportion of jobs in developed and emerging markets alike.

<table>
<thead>
<tr>
<th>% of workforce</th>
<th>Interaction jobs</th>
<th>Transaction jobs</th>
<th>Production jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>41</td>
<td>44</td>
<td>15</td>
</tr>
<tr>
<td>Germany</td>
<td>37</td>
<td>38</td>
<td>25</td>
</tr>
<tr>
<td>Brazil¹</td>
<td>26</td>
<td>32</td>
<td>41</td>
</tr>
<tr>
<td>India</td>
<td>26</td>
<td>33</td>
<td>41</td>
</tr>
<tr>
<td>China</td>
<td>25</td>
<td>31</td>
<td>44</td>
</tr>
</tbody>
</table>

¹Figures do not sum to 100%, because of rounding.
The Death Of Knowledge Work And The Rise Of 'Learning Workers'

During the past few decades we have spent a lot of time talking about knowledge workers and knowledge work. However today knowledge is nothing more than a commodity and to be the smartest guy in the room all you need access to is a smartphone. This is especially true when we consider that more “smart
Local Identity

A public place in service of society and the local economy
A new model of economic development

Building the economy of the future

Shaffer & Wright, 2010
Five Values to Preserve

3. Creating a better society
Equity of access
Under represented learners
Quality of learning
Opportunities for success
Five Values to Preserve

4. Power counterbalance
A Network Theory of Power

MANUEL CASTELLS
University of Southern California

Power in the network society is exercised through networks. There are four different forms of power under these social and technological conditions:

1. Networking Power: the power of the actors and organizations included in the networks that constitute the core of the global network society over human collectives and individuals who are not included in these global networks.
2. Network Power: the power resulting from the standards required to coordinate social interaction in the networks. In this case, power is exercised not by exclusion from the networks but by the imposition of the rules of inclusion.
3. Networked Power: the power of social actors over other social actors in the network. The forms and processes of networked power are specific to each network.
4. Network-making Power: the power to program specific networks according to the interests and values of the programmers, and the power to switch different networks following the strategic alliances between the dominant actors of various networks.
Five Values to Preserve

5. Advancing knowledge and research
Interdisciplinary

“Teaching science as the rational exploration of the unknown, not just mastery of what is known.”
The Future

It is not a pre-ordained ‘thing’ that will be handed to us

It is a network of inter-related factors that will connect/disconnect based on our values and related techno-socio-economic trends
Changing
Becoming
Or

Digital Learning Research Network (dLRN)

Or

PowerPoint slides

gsiemens@gmail.com
MODELS OF DRAMATIC CHANGE

- Creative Destruction
- Google
- iPad/iPod
- Netflix
- Disruptive Innovation
  - Mobiles
  - Khan Academy
  - Openness
- Techno-Socio-Economic
  - Creative Economy
  - Knowledge Economy
  - East-West, North-South Capital Flows
  - September, 2008
- Paradigm Shifts
  - Social Media Web 2.0
  - Linked Data Semantic Web
  - Social Network Learning
- Long Cycle of Adoption
  - Computers
  - Internet
CONTENT, CURRICULUM, TEACHING

USED TO MONETIZE THIS

ASSESSMENT

LEARNER

$$$
CONTENT, CURRICULUM, TEACHING

CAN BE DUPLICATED
(In A Lecture Model)

ASSESSMENT

LEARNER

Competencies
Informal Learning
Workplace Learning
MOOCs