Universities: Peril and Promise in a New Age

University of Guelph

George L. Mehaffy
12-13 February 2014
PERIL
In fifty years, if not much sooner, half of the roughly 4,500 colleges and universities now operating in the United States will have ceased to exist.

We are confronting massive change and great uncertainty.

Our institutions are challenged as never before.
The Overarching Theme of This New Age: **Shifting Power**

- The loss of power by traditional institutions
- The increased power of individual students
- The power of new organizations and groups to enter and compete in the marketplace
The Great Unbundling, when we can:

- Separate course elements from a course
- Separate courses from a degree
- Separate students from a specific college or university
- Separate faculty from a specific college or university
- Separate support services from the rest of the college or university
The Key Issue

How do we educate more students, with greater learning outcomes, at lower costs?
10 Critical Challenges
1. Our University Model

Was created in the 11th century

Operates on a 19th century agrarian calendar

To prepare students for life in the 21st century
2. Funding Model

National Governors Association (NGA):
“…state budgets will not be balanced until the latter part of the decade.”

“Health, criminal justice, and the K-12 schools will consume an increasingly larger share of the state’s resources.”

“Many states have structural deficits…”

http://www.cbpp.org/cms/?fa=view&id=711
State Expenditures for Higher Education
(as a percentage of all expenditures: local, state, federal, personal)

1975: 60%         2010: 34%

But huge variations in states: From 1980 to 2011-

Colorado       69 % decline
Minnesota       56 % decline
North Dakota    1 % increase
Wyoming         3 % increase

Based on the trends since 1980, average state fiscal support for higher education will reach zero by 2059.

State Funding: A Race to the Bottom. Thomas G. Mortenson
http://www.acenet.edu/the-presidency/columns-and-features/Pages/state-funding-a-race-to-the-bottom.aspx
3. Cost Model

*The unsustainable funding trends at public 4-year institutions, 1988-2008*

The Rising Cost of College, 1988-2008 (based on increases in current dollar amounts)

Simple Numbers:

Median inflation-adjusted household income, 2006 – 2011 7%

Tuition at public four year Institutions, 2006 – 2011 18%

http://www.nytimes.com/2013/02/01/opinion/my-valuable-cheap-college-degree.html?_r=0

Public higher education – an historic threshold: Students about to pay a higher percentage than the state. 2012 – net tuition 47% of public colleges’ costs.

http://chronicle.com/article/StudentsStates-Near-a/137709/
4. Business Model

Higher education is a set of cross-subsidies:
graduate education subsidized by undergraduate;
upper division subsidized by lower division

Jane Wellman, Delta Project
http://www.deltacostproject.org/

We also have cross-subsidies by disciplines.
Credit Hour Distribution and Average Instructional Costs

Public-four Year Averages, 4-state cost study
(SUNY, Florida, Ohio, Illinois)

<table>
<thead>
<tr>
<th>Division</th>
<th>% of all credits taken</th>
<th>% of total spending on instruction</th>
<th>Avg weighted cost/credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Division</td>
<td>36%</td>
<td>23%</td>
<td>1.00</td>
</tr>
<tr>
<td>Upper Division</td>
<td>48%</td>
<td>44%</td>
<td>1.42</td>
</tr>
<tr>
<td>Grad 1</td>
<td>12%</td>
<td>23%</td>
<td>2.88</td>
</tr>
<tr>
<td>Grad 2</td>
<td>4%</td>
<td>9%</td>
<td>4.00</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
<td>1.55</td>
</tr>
</tbody>
</table>

SHEEO, 2010
Courtesy Jane Wellman
Percentage of All Dropouts by Cumulative Months Enrolled, Beginning Postsecondary Students 2003-04

60% of attrition occurs in lower Division courses. Where spending per student is lowest.

NCES, BPS, undergraduates only

Courtesy Jane Wellman
Moody’s Inventor Services
Report January 23, 2012

“Tuition levels are at a tipping point”

Higher education must innovate to remain viable

• Collaborations between colleges
• More centralized management
• More efficient use of facilities
• Reduction in number of tenured faculty
• Geographic and demographic expansion of course offerings

http://chronicle.com/article/article-content/130434/
Red Balloon Project

New Moody’s Report, August 2013

In 2012:
• enrollment at public colleges was essentially flat
• revenues grew less than 2 percent
• expenses increased more than 3 percent

“...political pressure to limit tuition increases and little expectation for big improvements in state spending mean that public colleges will have to continue to cut costs for the foreseeable future.”

5. Evidence of Success

2006 American Institutes for Research (AIR)

20% of U.S. college graduates only have basic quantitative literacy skills...
...unable to estimate if their car has enough gasoline to get to the next gas station.

More than 50% of students at 4-yr colleges lack the skills to perform complex literacy tasks, such as comparing credit card offers or summarizing the arguments of newspaper editorials.

45% of students did not demonstrate any statistically significant improvement in Collegiate Learning Assessment (CLA) performance during the first two years of college.

A further study has indicated that 36% of students did not show any significant improvement in Collegiate Learning Assessment (CLA) performance over four years.
Graduation Rate, 2010 Study

63.2% of 2003 students who began at a 4-year college earned bachelor’s degree by 2009.


New Study 2012

Full time students: 75% in 6 years
Part time students: 32% in 6 years

6. Public Opinion

*** 60% (six out of ten) of Americans in 2010 said that colleges today … focused more on the bottom line than on the educational experience of students.

*** In a recent survey, 80% said that at many colleges, education received is not worth the cost.
Time Magazine, October 29, 2012, p. 37

*** Lumina survey in November/December 2012, three quarters (3/4) of respondents said that college is unaffordable.
http://chronicle.com/article/Americans-Value-Higher/137023/
7. The Role of Venture Capitalists

New Start-Ups

Udacity
Udemy
University Now
Coursebook
Coursekit
Courseload
CourseRank

http://chronicle.com/article/A-Boom-Time-for-Education/131229/

Note: Data include educational-technology companies in elementary and secondary education, higher education, lifelong learning, and informal education.

Source: National Venture Capital Association, Thomson Reuters
8. The Models of College

• University of the People (UoPeople):

• **Western Governors University (WGU)**
  now also WGU Indiana, WGU Washington (state), WGU Texas, WGU Tennessee, and WGU Missouri

• Peer to Peer University P2PU

• Udemy

• College Unbound
Common Features:

1. Lower Tuition Price
2. Prior Learning Assessment
3. Competency-based Models
4. Non-tenured Faculty
9. Debt and Inequality

Debt
Student loan debt outpaced credit card debt for the first time last year.

$ one trillion dollars this year

Average debt for those with loans is now $24,000.

http://www.nytimes.com/2011/04/12/education/12college.html?_r=2

Americans aged 50 and older owe $139 billion in student loans.

College (Unbound). Jeffrey J. Selingo. 2013
Inequality
1996 - 2012, public colleges and universities gave a declining portion of grants—as measured by both the number of grants and the dollar amounts—to students in the lowest quartile of family income.

The task of educating low-income students has increasingly fallen to community colleges and for-profit colleges.
http://chronicle.com/article/Public-Colleges-Quest-for/141541/

46.8% gap in bachelor’s degree attainment based on family income.
Who Receives Merit Aid?

1 in 5 students from families with income over $250,000

1 in 10 students from families with income under $30,000

Percentage of 24 Year Olds with College Degrees

<table>
<thead>
<tr>
<th></th>
<th>1970</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top-income quartile:</td>
<td>40%</td>
<td>70%</td>
</tr>
<tr>
<td>Bottom-income quartile</td>
<td>6%</td>
<td>10%</td>
</tr>
</tbody>
</table>

http://www.nytimes.com/2013/09/29/magazine/freebies-for-the-rich.html?_r=0
“The higher education system is more and more complicit as a passive agent in the systematic reproduction of white racial privilege across generations.

Since 1995, 82 percent of new white enrollments have gone to the 468 most selective colleges, while 72 percent of new Hispanic enrollment and 68 percent of new African-American enrollment have gone to the two-year open-access schools.”

http://cew.georgetown.edu/separateandunequal/
And it’s likely to get worse...

In 2011, the graduation rate:

All baccalaureate nonprofit colleges: 52%

With fewer than 20% Pell students: 79%

21 - 40% Pell students: 56%

41 – 60% Pell students: 42%

above 60% Pell students: 31%

10. Role of Research

What is the appropriate role of research, particularly in regional comprehensive universities?

How do we frame or conceptualize the research enterprise, and its relationship to the rest of the university?
As students pay more and more of the costs of higher education, there will be greater pressure on the issue of research.

Will we conduct the research enterprise on the backs of students?
And will we continue to privilege research over teaching?

Northwestern University Study

Academic performance, 8 cohorts of freshmen, 15,662 students, from fall 2001 to fall 2008.

Non-tenure track faculty member:
• Increases the likelihood that a student will take another class in the subject
• Increases the grade earned in that subsequent class
• Greatest gains for weakest students

http://chronicle.com/article/Adjuncts-Are-Better/141523/
Is Disruption Coming?

In *The Innovative University*, Christensen and Eyring argue that higher education has a common DNA:

- Face-to-face instruction, self-governance, departmentalization, summer recess, athletics, general education, majors, tenure, externally-supported research.

(and a very unhealthy aspirational culture)

Their conclusion… We have created
- confused, multiple-purpose missions…and
- unsustainable institutions

As a result, we are vulnerable to disruption.
Disruption comes from cheaper and simpler technologies that are initially of lower quality. Over time, the simpler and cheaper technology improves to a point that it displaces the incumbent.

Christensen and Eyring argue that technology, and especially the on-line course, is the disruption enabler.

The Innovative University.
Clayton Christensen and
Henry J. Eyring. 2011
Technology
Changes
Everything
Robert Darnton  
*Four Great Information Ages*

- Invention of Writing, Mesopotamia, 4,000 BC
- Moveable type
- Mass steam-powered presses, Industrial Age
- Internet, after 1993

*Now You See It: Attention and the Future of Learning.* Cathy N. Davidson,  
Think about the impact of technology:

On journalism…

On the music business…

On the photography business…

On the book publishing/selling business…

The Long Tail.
Chris Anderson (Hyperion, 2006)
But do we realize the impact in time?

Once you see this pattern—a new story rearranging people’s sense of the possible, with the incumbents the last to know—you see it everywhere. First, the people running the old system don’t notice the change. When they do, they assume it’s minor. Then that it’s a niche. Then a fad. And by the time they understand that the world has actually changed, they’ve squandered most of the time they had to adapt.

Headline in the Washington Post, Spring 1900, just before its first auto show in December 10, 1900.

“Horse Market Active. Effect of Automobile is Not Feared by Dealers. It Is Looked Upon Only as a Fad”


• Overman Automobile Company
• Riker Motor Co. Knox Automobile Company
• Woods Motor Vehicle Company
• Pennsylvania Horseless Carriage Manufacturing Company
• Electric Vehicle Company
PROMISE
The Century of Education

More human beings will be better educated than at any time in the history of humankind.

Who will be the providers of education in the 21st century?
For us to be the providers, we have to be willing to examine everything

- Courses and Classrooms
- Policies, Practices and Procedures
- Library, Bookstore, Office Space
- Governance
- The Concept of Campus
- What is College
“The future is here:
It’s just not widely distributed.”

William Gibson, Canadian Writer
The Current Course Models

• Cottage Industry Models

• Open University (UK) – University of Phoenix Models

• Partnership Models (USC)

• Individual Course Models

• Massive Open Online Courses
Cottage Industry Model

Everyone designs his or her own course, from scratch, each semester.

And no one learns anything about the most effective course content or most effective teaching practices…

except that individual teacher, who learns only from his or her own experiences.
Open University of the UK - University of Phoenix Model

- Huge resources (money and people) put into course design

- Taught by a large number of adjuncts in a fairly similar way

- Evaluation of learning outcomes conducted by another unit

- Huge scale involved (U of Phoenix 450,000 students)
Partnership Model (USC)

Venture capitalist partners with a public or not-for-profit university

- 2tor USC and John Katzman. MAT
- Academic Partnerships. Example, Lamar University and Randy Best: MA in Education – reduced cost and time to completion.
- 2U. Semester Online. 10 universities

The last frontier, when outsourcing finally penetrates the academic center.
Individual Course Offerings

StraighterLine:

• offers courses for $99
• entire freshman year for $999

Blackboard and K-12, Inc

• Selling online courses to community colleges
Massive Open Online Courses (MOOCs)

Stanford University. Computer Science (CS) 221 Offered Fall 2011 by S. Thrun and P. Norvig. More than 160,000 students from 190 countries. 44 languages. 23,000 students completed. 200 Stanford students enrolled; by the end of the course, only 30 Stanford students were still attending the lecture.

Great resource on MOOCs: http://iberry.com/cms/mooc

EdX
Coursera
Udacity
Semester Online
The State of the MOOCs
Mixed messages

Bad News

1. Hype cycle
2. Lack of completion
3. Credit for MOOCs continues to be questionable
4. No one wanted credit for MOOCs, Colorado State
5. Problems with Udacity MOOC at San Jose State
6. Sebastian Thrun is rethinking his approach
7. Growing skepticism by academic leaders
The State of the MOOCs
Mixed messages

Good News
1. Coursera got $ 43 million in additional funding
2. Institutions/systems, 9 states, signed with Coursera
3. Many institutions experimenting with MOOCs
4. 6 million students enrolled
5. EdX MOOC at San Jose State succeeds
6. Computer Science MOOC at Georgia Tech
7. Udacity and San Jose offering courses this spring
“MOOCs are not the future of higher education-----

-------------- that future will be far more various and surprising than we can see now--------------

-----but they do expand the horizon of the visible.

So what will the college course of the future look like?

What elements might it contain?
Flipped Courses

The “flipped” course. You do homework by watching lectures. You go to class to work on problems together.

Khan Academy: 2,400 videos covering everything from arithmetic to physics, finance, and history. Khan lessons viewed by more than 4 million people a month. http://www.khanacademy.org/

Use technology to improve efficiency and effectiveness
Open Learning Initiative (OLI)
Carnegie Mellon University
http://oli.web.cmu.edu/openlearning/index.php

Team: content specialist
cognitive scientist
instructional designer
graphic designer

Results showed that OLI-Statistics students learned a full semester’s worth of material in half as much time and performed as well or better than students learning from traditional instruction over a full semester.

http://oli.web.cmu.edu/openlearning/publications/71-effectiveness-statistics0

Use team approach rather than individual
Science Classes

The Carl Wieman Science Education Initiative

Three strategies:
1. Reducing cognitive load
2. Addressing beliefs
3. Stimulating and guiding thinking

http://www.cwsei.ubc.ca/

Experiment produced two times the learning outcomes

Use cognitive science to inform instruction
Math Emporiums

“Higher Education’s Silver Bullet” Carol Twigg http://www.changemag.org/Archives/Back%20Issues/2011/May-June%202011/math-emporium-full.html

3 Keys To Success:

1. Interactive computer software
2. Personalized on-demand assistance
3. Mandatory Student Participation

Personalized software, explicit rules, variations in help
Blended Courses

Blended (hybrid) courses combine fact-to-face classroom instruction with online learning and reduced classroom contact hours (reduced seat time)


SRI Study

Ithaka Study

Combine best of human interaction and technology
National or Collaborative Blended Learning Courses

Two courses now in development:

1. Global Challenges
   http://www.aascu.org/GlobalChallenges/

2. The Stewardship of Public Lands

Use crowdsourcing and other human/technology strategies to produce high quality programs

Key Idea:
“We need to move from ‘not invented here’ to ‘proudly borrowed from there’” Cable Green tweet
Broad Course Re-Design

George Kuh  *High Impact Practices*

- First-year seminars and experiences
- Common intellectual experiences
- Learning communities
- Writing-intensive courses
- Collaborative assignments and projects
- Undergraduate research
- Diversity/global learning
- Service learning, community-based learning
- Internships
- Capstone courses and projects


Analytics (Big Data)

A method of warehousing, organizing, and interpreting the massive amounts of data accrued by online learning platforms and student information systems ...

... in hopes of learning more about what makes students successful...

... and by giving instructors (and the platforms themselves) the chance to adjust to improve learning outcomes.

Analytics provides:

Information for the Institution
- Predicting academic demand
- Tracking course success
- Dropout prevention, social integration
- Reporting information: state, federal, accreditors

Information for Faculty Members
- Student Progress and Success
- Areas of Confusion or Misunderstanding

Information for the Student
- Course selection and progress
- Major selection
- Program progress
Some Examples of Data Analytics

- Degree Compass (Desire2Learn)
- SHERPA (South Orange County Community College)
- Signals (Purdue University)

Recent study at Purdue indicates that students who took at least two courses using Signals graduated at a rate 21% higher than students who did not take a course with Signals.
Personalization

The capacity of software and systems to tailor course materials, learning processes, and approaches to the unique circumstances of individual learners.

- Individual characteristics
  - Learning style
  - Memory decay
  - Pacing
- Obstacles or misunderstandings
An Analysis of 70 New Personalization Providers

- Adapt Courseware
- ANewSpring
- Cerego Global
- Cogbooks
- Jones and Bartlett Learning
- Knewton
- Loudcloud Systems
- McGraw-Hill Learnsmart Advantage Suite
- Open Learning Initiative
- Quantum Simulations
- Smart Sparrow

Learning to Adapt. 2013
http://edgrowthadvisors.com/research/
What about other areas of emphasis?

What about other parts of the institution?
Prior Learning and Competencies

Prior Learning Assessments:
CAEL

New Competency-based Degrees:
Southern New Hampshire University
Northern Arizona University
Western Governor’s University

Competency-based Hybrid Degrees:
Texas A&M Commerce, South Texas College

Badges:
Khan Academy
Mozilla

Certifications:
Cisco
CLA
Key Shifts In Teaching and Learning

- From episodic to continuous learning
- From content conveyors to content curators
- From grades to continuous feedback mechanisms
- From lecture halls to collaborative spaces
- From degrees to reputation metrics
- From working at one scale to working up and down the scale

Marina Gorbis, Institute for the Future, Plenary Address, AASCU Annual Meeting, October 2013, Los Angeles
Changes in Faculty Work

• Faculty will work in a networked world --- collaboration of faculty, other experts, and students across time and space.

• Faculty will become more interdisciplinary as they also become more specialized.

• Many other specialists will be involved in teaching and learning.
Atul Gawande: “Big Med” The New Yorker
http://www.newyorker.com/reporting/2012/08/13/120813fa_fact_gawande?currentPage=all

In medical education, Darrell Kirch describes “An Emerging Culture for Health Care”

1. Hierarchal to Collaborative
2. Autonomous to Team-Based
3. Competitive to Service-Based
4. Individualistic to Mutually Accountable
5. Expert-centered to Patient-centered

A Focus on Learning Outcomes

• New Tools  (*CLA, CAAP, and MAPP*)

• New Organizations  (*NILOA, New Leadership Alliance, etc.*)

• New Initiatives  (*Degree Qualifications Profile DQP*)

• New Pressures  (*Academically Adrift*)

• New Expectations  (*business, parents and students, government, accreditors*)
What Learning Outcomes?

What are the key work attributes of the 21st century?

--- Solving unstructured problems
--- Working with new information
--- Carrying out non-routine tasks
--- Complex communication
--- Expert thinking

Learning Centredness


Accreditation visit to Georgia Southwestern University
Reducing Costs

- Time to Completion
- 120 hours for all majors
- Reducing bottlenecks in completion
- Charging out-of-state for 30+ credits beyond graduation requirements
- Intrusive advising and early remediation
- Flat rate for summer courses
Free and Inexpensive Materials

Free courses: 15,000+ free courses

Free textbooks: Temple, Rice, Flatworld

Free materials: Open Educational Resources (OER) initiative, $110 million, Hewlett

“One potential ... introductory courses are commodities offered free or close to free.”

Changes in Academic Structures

- Course (set of competencies)
- Credit Hour (based on seat time)
- Semester (unlike Facebook)
- Curriculum (interdisciplinary, community-linked)
- Degree (competency, certificates, etc.)
Changes in Administrative Practices

- Outsourcing
- Campus Consolidation
- Multiple-institutional Courses
- Strategic and Corporate Partnerships
- Contingent and Flexible Workforce
- Alterations in Benefits
Categories Will Become Blurred

- High school / college
- Two year / four year
- Transfer
- Academic Affairs / Student Affairs
- Interdisciplinary
- Academic Units Based on Topics/Problems
Old Arguments

• Online v. Face-to-Face
  (same stupid arguments)

• Academic Affairs – Student Affairs
  (a dysfunctional separation)

• Job Preparation or Career Preparation
  (a false dichotomy)
Pervasive Myths

Remedial Education

Pair Non-credit with Credit Courses

Austin Peay State University. Tristan Denley, then Provost (now with the Tennessee Board of Regents)

Reported significantly greater success with the concept of paired classes, plus extended support.
College Algebra

Carnegie Foundation for the Advancement of Teaching: Quantway and Statway

Essentially argues that traditional college algebra is not needed or useful for everyone, and that other forms of mathematical reasoning are often more helpful, depending on major and career.

http://www.carnegiefoundation.org/quantway
http://www.carnegiefoundation.org/statway
How do we transform ourselves?

1. Leadership at many levels
2. Boldness
3. Experimentation and Innovation
4. Sense of Urgency
5. Reliance on Evidence
Building a Faculty Culture of Change

1. Relearn the importance of collective action
2. Put an end to rhetorical excess
3. Empower a different kind of faculty leader
4. Recast the faculty-staffing table
5. Academic department as the unit of instructional production

http://chronicle.com/article/How-to-Build-a-Faculty-Culture/141887/

Zemsky: “As individuals we will have to abandon that sense of ourselves as independent actors and agents.”
Considerations for Success

Cost
Efficiency
Effectiveness

Pathways for Success

Differentiation
Strategic Partnerships, Public and Private
A New Model
Stewards of Place

AASCU institutions are naturally connected to their communities. Their students, in large part, come from the community and region. The jobs and careers students go into are in the region. The most significant research opportunities are linked to the region. Their political support depends on the region.
Portland State University

“Let knowledge serve the city.”
Stewardship of Place means:

• The classroom is the community

• Research is with, in, and about the community

• Service is with, in, and for the community
Stewards of Place Milestones

• 2002 Original Publication: *Stepping Forward As Stewards of Place*

• 2014 Saltmarsh Analysis of 2008 and 2010 Carnegie Community Engagement Classification Applications

• 2014 New Monograph on Where/How to Be a Steward of Place
Bill Plater, when asked about his goals for IUPUI:

“I want Indianapolis to be one of the 10 best places to live and work in the world.”
America's economy is caught up in a "race between innovation and calcification--between the power of new ideas to lower costs and boost quality, and the power of entrenched interests to protect their habits and incomes."

Matt Miller, Washington Post, September 22, 2010
The Ultimate Question For Our Institutions

Can we transform ourselves before we are disrupted?
The challenge is enormous. We have a confusion of purposes, distorted reward structures, limited success, high costs, massive inefficiencies, and profound resistance to change.
“Yet the progress is so slow that I wonder if traditional institutions can really survive.”
The Pony Express

A Cautionary Tale About Disruption
PONY EXPRESS
St. JOSEPH, MISSOURI to CALIFORNIA
in 10 days or less.

WANTED

YOUNG, SKINNY, WIRY FELLOWS
not over eighteen. Must be expert
riders, willing to risk death daily.

Orphans preferred.
Wages $25 per week.

APPLY, PONY EXPRESS STABLES
St. JOSEPH, MISSOURI
The Pony Express

St. Joseph, MO to Sacramento, CA  1,900 miles
Stations set up every 10 miles (as far as a horse can gallop); Riders changed every 60 to 100 miles.

Reduced letter delivery from 24 to 10 days
Started: April 3, 1860

Ended: October 26, 1861

19 months later

Why?

The completion of the transcontinental telegraph
This is not simply a difficult moment for higher education: it is the dawn of a very different era. The institutions that will succeed—indeed, thrive—in this era will be those that constantly innovate.

Edward Deming, the great management guru, said

“It is not necessary to change.”

“Survival is optional.”