Innovation in Higher Education:
Creation or Destruction?
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Innovation Defined

Applying surprise in the service of improving the human condition

- Make existing resources better, faster, cheaper
- Create new technologies, breakthroughs
CREATIVITY IN AMERICA

THE SCIENCE OF INNOVATION AND HOW TO REIGNITE OUR IMAGINATIONS

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RISEING ABOVE
THE GATHERING STORM,
REVISITED

Rapidly Approaching Category 5

By Members of the 2005
“Rising Above the Gathering Storm” Committee

Prepared for the Presidents of the
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and Institute of Medicine

NATIONAL ACADEMY OF SCIENCES,
NATIONAL ACADEMY OF ENGINEERING,
AND INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMY
The Innovator’s Dilemma

- Good businesses are often incapacitated by disruptive innovation
- Listening to your normal customer base will not predict the next disruptive innovation
- Late adoption of disruptive innovation leads to business failure
A Method for Innovative Thinking
Overcoming Habitual Cognitive Patterns and Their Implications
Frames are Ubiquitous and Emotional

Remove street signs from city centers
Frame Shifting

- Step 1: Develop an awareness of the current frame
- Step 2: Consider consequences of the current frame
- Step 3: Devise an alternate frame
- Step 4: Consider consequences of the alternative frame, both positive and negative
Frame Shifting
Example 1

Frame
- Life is sacred.

Consequences
- In an effort to live as long as possible, people sacrifice quality of life.
Frame Shifting
Example 1

Alternative Frame

- Death is inevitable. Autonomy and dignity should trump length of life.

Consequences of Alternative Frame

- Do we have the right to interfere with someone’s desire to prolong their life?
Frame Shifting
Example 2

Frame

• Causation viewed as the emergence from a source, like the birth of a child from its mother.

Consequences

• Ideas are nurtured and defended like children. Scientists defend their reasoning even when it does not fully explain all observations.
Frame Shifting
Example 2

Alternative Frame

- Ideas should be spawned, then left to fend for themselves.

Consequences of Alternative Frame

- Generate novel concepts, but let others try to defend or refute them. However, if we don’t defend them, perhaps no one will.
Frame - Universities are a business with revenues, expenditures and profit margins.

Consequences - Economics shapes priorities and strategies.
BUT...

With shrinking state budgets, more competitive federal dollars, and tighter philanthropy CAN the current business model hold?
Alternative Frame: Higher education is a human right as a means to maximizing individual potential.

Consequences: Society MUST support human rights.

Consequence implies a responsibility that universities find the MOST efficient and effective way to provide universal opportunities.

Action: organizations such as AASCU and partners to impact public policy.
Frame

- Higher education provides skills useful in the marketplace.

Consequences

- Education is a commodity that can be broken down into specific skills taught in bulk.
Disruptive Innovations

Information is ubiquitously available: Wikipedia

Udacity and edX will provide freely available skill building.
Alternative Frame

• Higher education is a means for the intellectual and moral preparation of a democratic electorate (historical).

Consequences of Alternative Frame

• In a highly technical world will students be prepared to enter the workforce?
OR...

Will employers applaud a more useful work-force?

- Employers say their number one priority is workers with the ability to synthesize and innovate.
- Emphasizing higher order thinking abilities allows students to be curious, generative, to interpret, and to analogize.
Observation

- Normal observation becomes complacent
- Normal observation is biased by expectations
Observation

- Higher order thinking and writing skills improve very little during the first two years of college.
- Blacks have poorer thinking skills after two years than whites did upon matriculation.
Analogy

- Bell: Electromagnetic vibration as human voice
- Jenner: Cowpox protection as smallpox protection
Analogy Exercise

• How is a marriage like a matchbox?
• How is history like a mango?
• How is neurotransmission like a symphony?
Higher education as compared to skill building among young children
- See one, do one, teach one.
Okay for Science...
but what about history?

• See historian collect primary data.
• Students collect data with supervision.
• Students devise a question based on a modern political debate and devise a method to discern its historical roots.
Change Your Point of View

• Darwin imagined himself as a plant
• Einstein imagined traveling at the speed of light
• Montessori imagined herself as a child
Employer Point-of-View

- Our employers complain about lack of specific abilities (writing, working in teams, innovation, judgment).
- Employer contracts to train workforce:
  - Work hand-in-hand to develop curriculum.
  - University “guarantees” employees in exchange for scholarships?
Reorganization and Rearrangement

- Functional fixedness: a particular object implies a particular use
- Candle experiment: attach the candle to the wall
  - Candle
  - Book of matches
  - Box of thumbtacks
Disruptive innovation is best anticipated and adopted...

- By small, agile, independent components of the organization.
- Can prototype, fail fast, and have ample resources to move on.
Broadening Your Perspective

- US University organization has changed almost none since the 18th century.
- Incentives are not aligned for change.
- To innovate, we must provide broad-based incentives.
Innovative organizational strategies at UT School of Public Health

1. Innovation faculty searches
2. Innovation Incubator
3. Front-of-the-Envelope Program
4. Innovative visiting scholars program and sabbatical programs
5. Innovation as part of P&T
Reversal

• Medicine: Presence of disease
• Public Health: Absence of disease

• Implications for obliviousness to absence
  • Hard to get people excited
  • Hard to get compliance
Creative Reversal

• Change too great a risk – might we fail?

VERSUS

• Disruptive innovation so likely that if we are not early adopters of change we will surely fail.