

# The End of Veterinary School As We Know It

## *Disruptive Innovation*



Andrew T. Maccabe, DVM, MPH, JD  
Chief Executive Officer

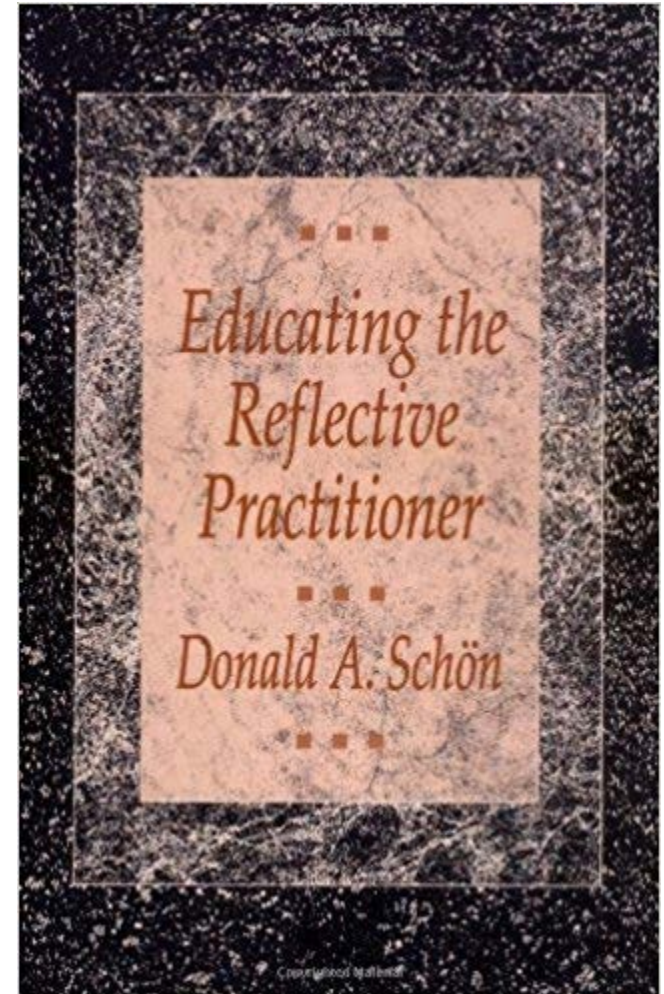
University of Tennessee – Knoxville  
January 19, 2018



# The Grand Bargain

In return for access to their extraordinary knowledge in matters of great human importance, society has granted professionals a mandate for control in their fields of specialization, a high degree of autonomy in their practice, and a license to determine who shall assume the mantle of professional authority

Donald Schon, *Educating the Reflective Practitioner* (1987)



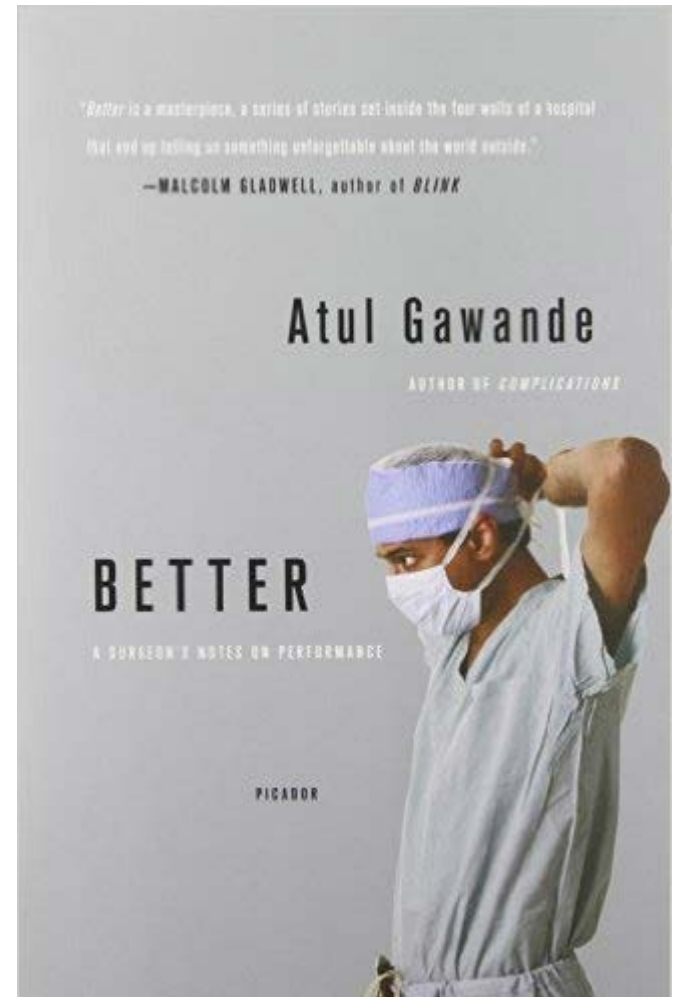




# The Grand Bargain

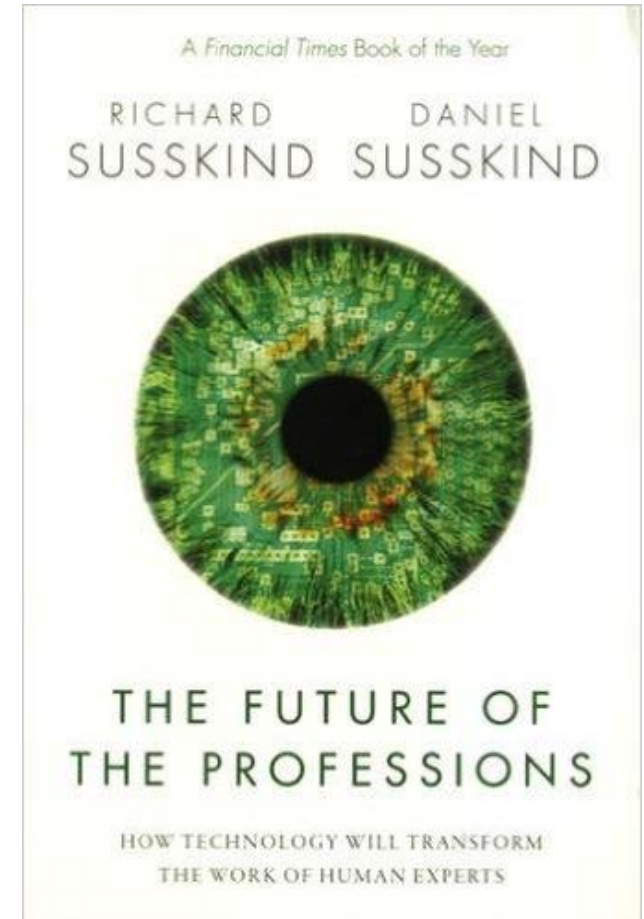
The public has granted us extraordinary and exclusive dispensation to administer drugs to people, even to the point of unconsciousness, to cut them open, to do what would otherwise be considered assault, because we do so on their behalf – to save their lives and provide them comfort.

Atul Gawande, *Better* (2007)



## Technology will transform the work of human experts

- We will neither need nor want professionals to work as they did in the 20<sup>th</sup> Century
- **Increasingly capable systems** will change the way expertise is made available
  - Telehealth
  - Artificial Intelligence
  - Robotics

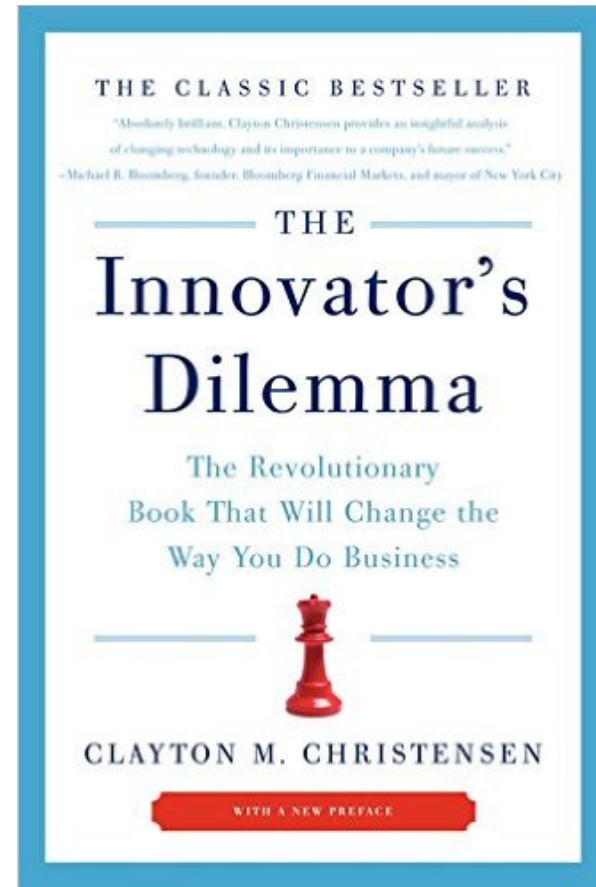




# Disruption in Higher Education

## Low end disruption

- Lower gross margin
- Smaller target market
- Simpler products and services





# Disruption in Higher Education

The book cover for 'The End of College' by Kevin Carey. It has a bright yellow background. On the left, there is a black rectangular area containing the title 'The End of College' in large, white, sans-serif font. Below the title, in smaller white text, is the subtitle 'Creating the Future of Learning and the University of Everywhere'. At the bottom of the black area, the author's name 'KEVIN CAREY' is written in white, all-caps, sans-serif font. To the right of the black area, there is a graphic of a yellow, pixelated explosion or burst of light.

## The End of College

Creating the Future of Learning  
and the University of Everywhere

KEVIN CAREY

Higher education is ripe for disruptive innovation

- Not much has changed in 150 years
- Innovation is stifled in the current system





# Disruption in Higher Education

## 3 Big Ideas

- Liberal Arts
  - John Henry Newman
- Practical Training
  - Justin Smith Morrill
- Research Institute
  - Wilhelm von Humboldt



# Disruption in Higher Education

## 3 Big Ideas

- Liberal Arts
  - John Henry Newman
- Practical Training
  - Justin Smith Morrill
- Research Institute
  - Wilhelm von Humboldt

## Hybrid Model

- Inefficient and conflicted
- Education is disfavored
- Institutional isomorphism

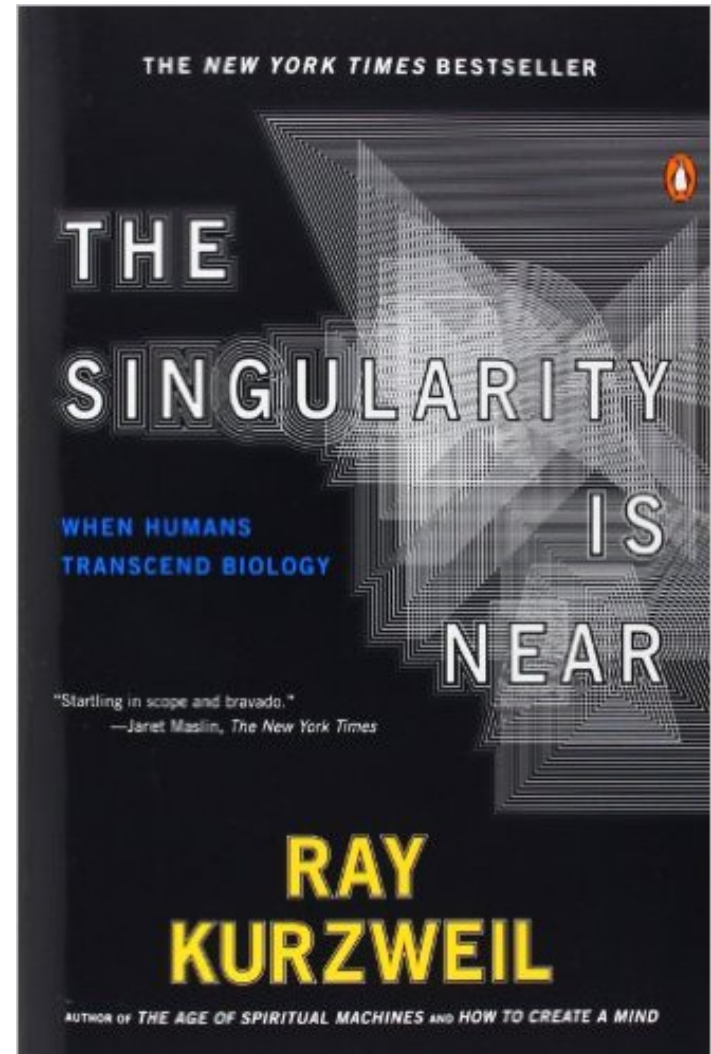




# The Role of Technology

The **Law of Accelerating Returns** predicts an exponential increase in technologies like computers, genetics, nanotechnology, robotics, and artificial intelligence.

This will lead to a technological singularity in the year 2045, a point where progress is so rapid it outstrips humans' ability to comprehend it.





# Innovation in Higher Education

*What  
Information  
Technology  
advancements  
have changed  
the nature of  
education?*



# Innovation in Higher Education

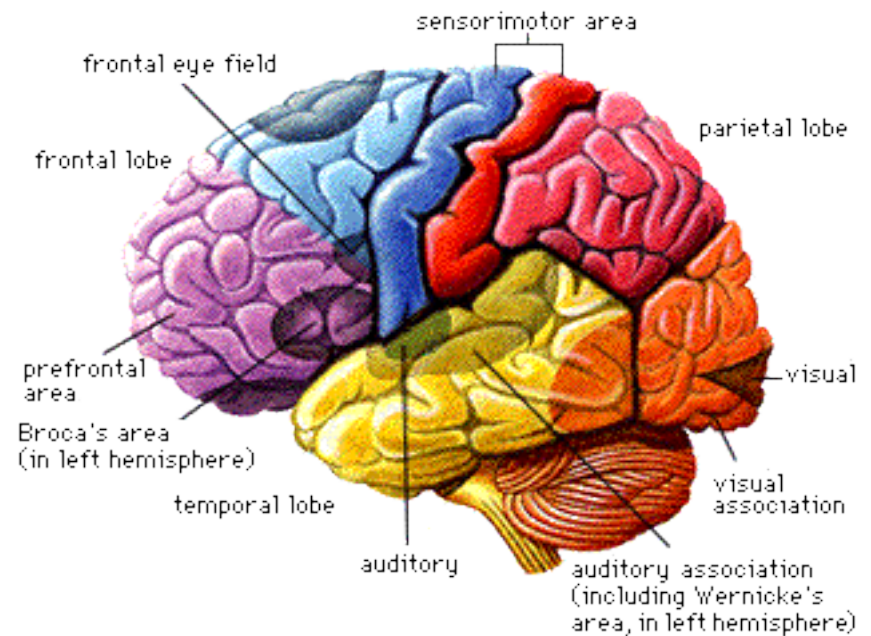
*What  
Information  
Technology  
advancements  
have changed  
the nature of  
education?*





## Uniquely Individual

- Abstract thought
- Active learning
- Higher order cognition

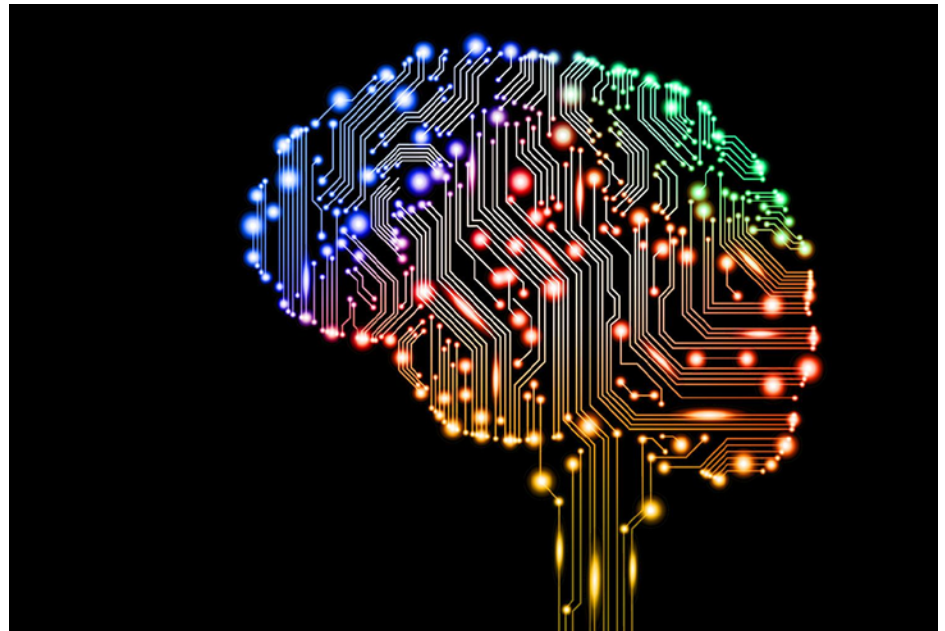




## How We Learn

### Personalized Teaching

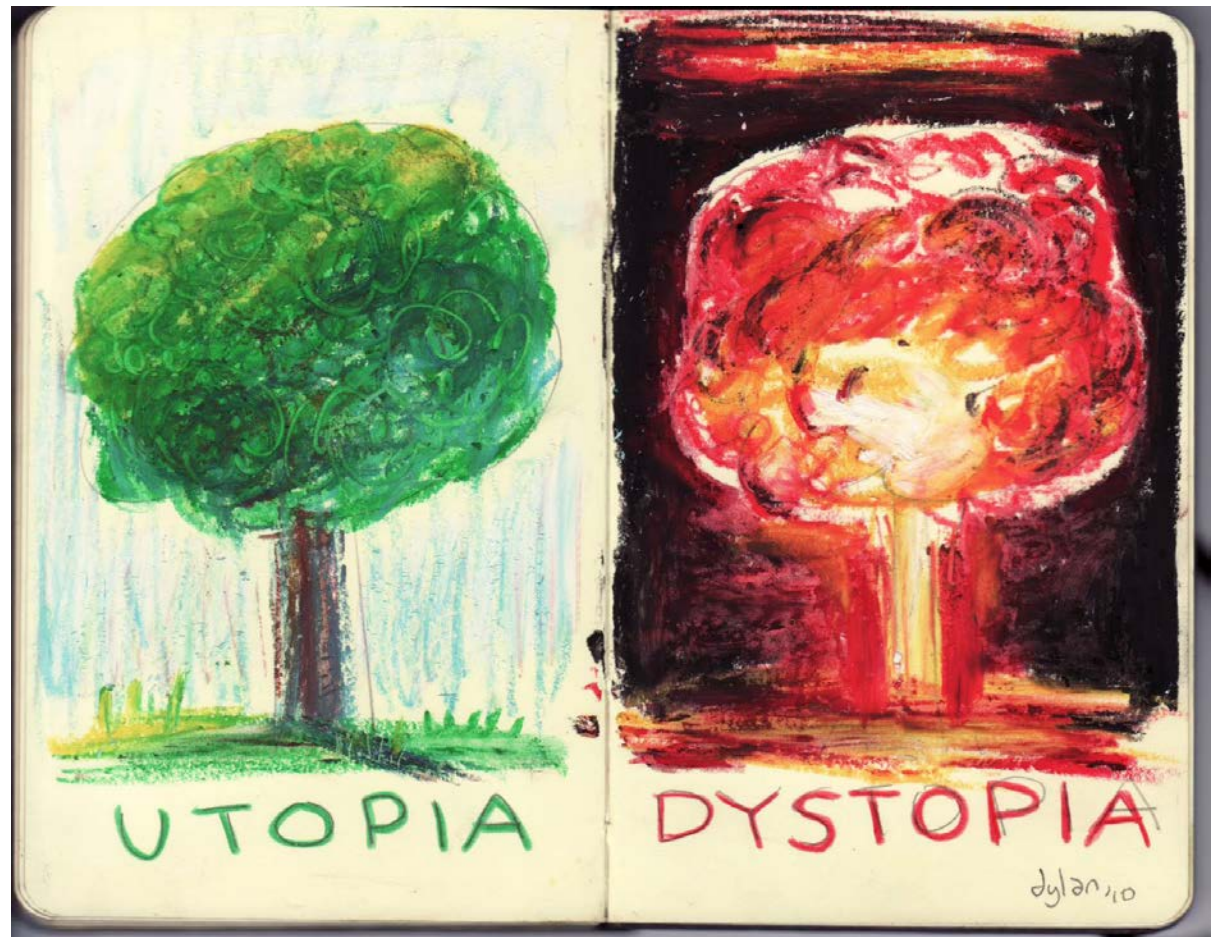
- Customized
- Instant feedback
- Self-paced
- Adaptive





# The End of Veterinary School

What's next?







# The End of the World?

*“It’s the end of the  
world as we know it”*

– R.E.M.





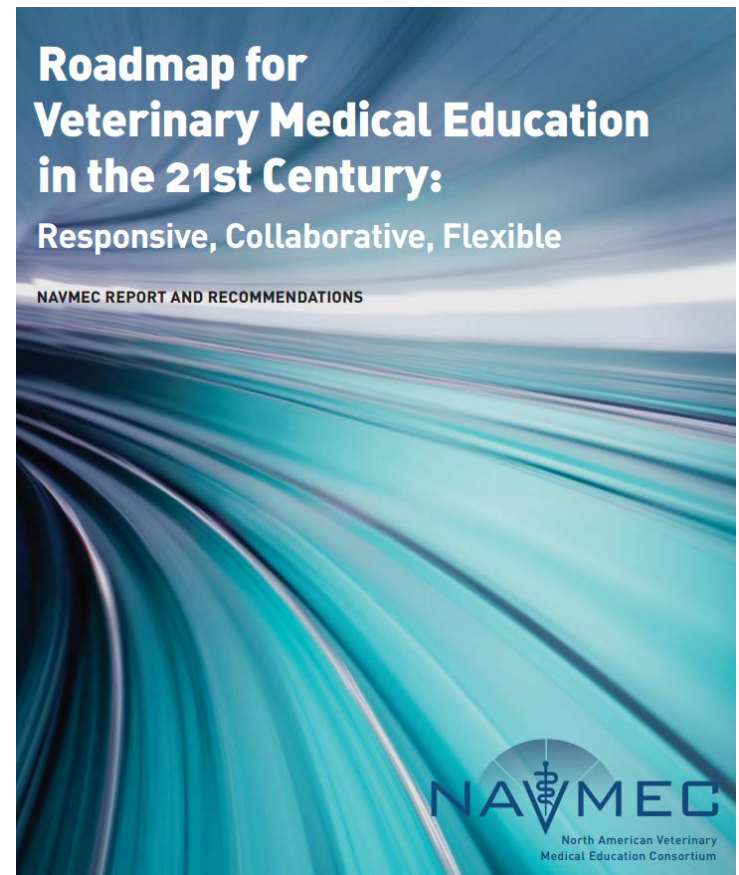
## Council on Education Standard 11, Outcomes Assessment

1. Comprehensive patient diagnosis (problem solving skills), appropriate use of diagnostic testing, and record management
2. Comprehensive treatment planning including patient referral when indicated
3. Anesthesia and pain management, patient welfare
4. Basic surgery skills and case management
5. Basic medicine skills and case management
6. Emergency and intensive care case management
7. Understanding of health promotion and biosecurity, prevention and control of disease including zoonoses and principles of food safety
8. Ethical and professional conduct; communication skills including those that demonstrate an understanding and sensitivity to how clients' diversity and individual circumstances can impact health care
9. Critical analysis of new information and research findings relevant to veterinary medicine.



# NAVMEC (2011)

1. Multispecies knowledge plus clinical competency in one or more species or disciplines
2. One Health knowledge (animal, human and environmental health)
3. Communication
4. Collaboration
5. Management (self, team, system)
6. Lifelong learning, scholarship, value of research
7. Leadership
8. Diversity and multicultural awareness
9. Adapt to changing environments







# OIE (2012)

1. Epidemiology
2. Transboundary animal diseases
3. Zoonoses, including foodborne diseases
4. Emerging and re-emerging diseases
5. Disease prevention and control
6. Food hygiene
7. Veterinary products
8. Animal welfare
9. Veterinary legislation and ethics
10. General certification procedures
11. Communication skills





## AAVMC Working Group

1. Clinical reasoning and decision-making
2. Individual animal care and management
3. Animal population care and management
4. Public health
5. Communication
6. Collaboration
7. Professionalism and professional identity
8. Financial and practice management
9. Scholarship



# Competence-based training and Assessment

“The intended output of a competency-based program is a health professional who can practice medicine at a defined level of proficiency, in accord with local conditions, with local needs”

- McGahie, W. C., *et al* (1978)

“Competency-based education is an approach to preparing professionals for practice that is fundamentally oriented to graduate outcome abilities and organized around competencies derived from an analysis of societal and patient needs.

- Frank, J.R., *et al* (2010)





# Competence-based training and Assessment

“The intended output of a competency-based program is a health professional who can practice medicine at a defined level of competence.”

- Focus on outcomes
- Emphasis on abilities
- De-emphasis of time-based training
- Promotion of learner-centeredness

“Competency-based programs are oriented to graduate outcome abilities and organized around competencies derived from an analysis of societal and patient needs.”

- Frank, J.R., *et al* (2010)



# The End of Veterinary School

Embrace the Change

Harness the technology

Redefine the value of education



# Competency-Based Education

- De-emphasize time-based training
  - Develop students' abilities
  - Flexible, individually-oriented curriculum
- Promote learner-centeredness
  - Students take responsibility for their own learning
  - Develop skill in seeking and providing feedback





# Future of the Degree



## The Future of the Degree: How Colleges Can Survive the New Credential Economy

As the economy undergoes significant change, the meaning of the college degree is increasingly questioned. This report examines the history of college credentials, the ultimate value of the college degree, and the development of lifelong credentials.

*Jeffrey J. Selingo*  
*Chronicle of Higher Education*  
*August 18, 2017*



# The End of the Beginning

*“It’s the end of the  
world as we know it”  
(And I feel fine)  
– R.E.M.*

