The Future of Higher Education:

Some Big Picture Questions

Senate Presentation

February 6, 2013

MOOCs will forever change how we see the purpose of higher education

MOOC's Take a Major Step Toward College Credit

Harvard, MIT Partner To Provide Free Courses Through edX

California State U. Will Experiment With Offering Credit for MOOCs: In a deal with Udacity, courses will be free online, but students who want credit will be able to take them for just $150.

Coursera Announces Details for Selling Certificates and Verifying Identities

College Degree, No Class Time Required: University of Wisconsin to Offer a Bachelor's to Students Who Take Online Competency Tests About What They Know

Near-Term Outlook Is Bleak for All of Higher Education, Moody's Says: Across-the-board pressure on all of the revenue sources that support higher education has prompted Moody's Investors Service to issue a negative short-term outlook for the entire sector in a report issued on Wednesday

Texas Highlights Culture Clash Over "Elite" Public Universities

.... in an era of budget-cutting and soaring tuition, is there still a place for "Cadillacs" — elite, public research institutions like Texas, Michigan, California-Berkeley and Virginia that try to compete with the world's best?

Over the last 18 months, presidents of 11 of the 35 leading public research universities have quit or been fired.

House Appropriation Committee Testimony March 5:
"Making Education Affordable for Michiganders"

>> push for accountability and productivity <<

Does a Residential Campus University have a Future?

What is the purpose of a College Education?

Vision 2035 for Michigan Tech

AAC&U Announces New Mission Statement :

Make Excellence Inclusive and Provide Every College Student the Kind of Education that Positions One for Success and Civic and Social Responsibility in the 21st Century.

- Arizona State's President Michael M. Crow:

  the challenge is to "find ways to massively innovate" without resorting to a higher-education future where "we let rich kids get taught by professors and poor kids get taught by computer."

  » *Design Principles for a New American University*

1. Leverage our Place

Michigan Tech embraces its cultural, socioeconomic and physical setting.

Michigan Tech will maintain and define its niche as a technological university, with a residential campus, offering discovery-based learning in a technology-rich teaching and learning environment;

will prepare "graduates for the unknown challenges of careers and citizenship of tomorrow by providing the higher order intellectual skills necessary to cope with a future of continual yet unpredictable change."

For students who want to be part of a "tech powerhouse" (Princeton Review), who are adventurous and love to live in a naturally beautiful location on Lake Superior that offers many opportunities for outdoor adventure: hiking, biking, skiing, snowshoeing, boating, swimming, fishing, and more (Houghton has been listed as one of the best 100 places to live).

WHO'S YOUR CITY? How the creative economy is making where you live the most important decision of your life (Richard Florida)

2. Transform Society

Michigan Tech catalyzes social change by being connected to social needs.

General Education Values

(Founding Fathers: educated citizenry -> a prosperous nation):

Prepare students for being engaged and tackling the big problems

Relevant Degree Programs

Global Risk Landscape 2013 (World Economic Forum)

Ranks economic, environmental, geopolitical, societal and technological factors according to *Likelihood to occur*, Impact if the risk were to occur

-> *Water supply crisis, severe income disparity*

3. *Value entrepreneurship*

Michigan Tech uses knowledge and encourages innovation

Michigan Tech continually adapts inside and outside the classroom with the primary goal of ensuing student success – a major effort moving forward to fulfill its mission to provide an education that matters, and to pursue "…the application of science to industry" a charge given to us in 1885.

Enterprise program: Michigan Tech is among 29 colleges and universities showcased in a new National Academy of Engineering (NAE) report called *Infusing Real World Experiences into Engineering Education*.

Concentration in Entrepreneurship

MTESC/SI Michigan Tech Entrepreneurial support corporation

4. Conduct Use-inspired research

Michigan Tech research has purpose and impact

In the past five years: ten start-up companies while in the past year alone, we executed 19 technology licenses and 50 invention disclosures (Michigan Tech ranks among the top universities in the nation for invention disclosures per $10 million of research).
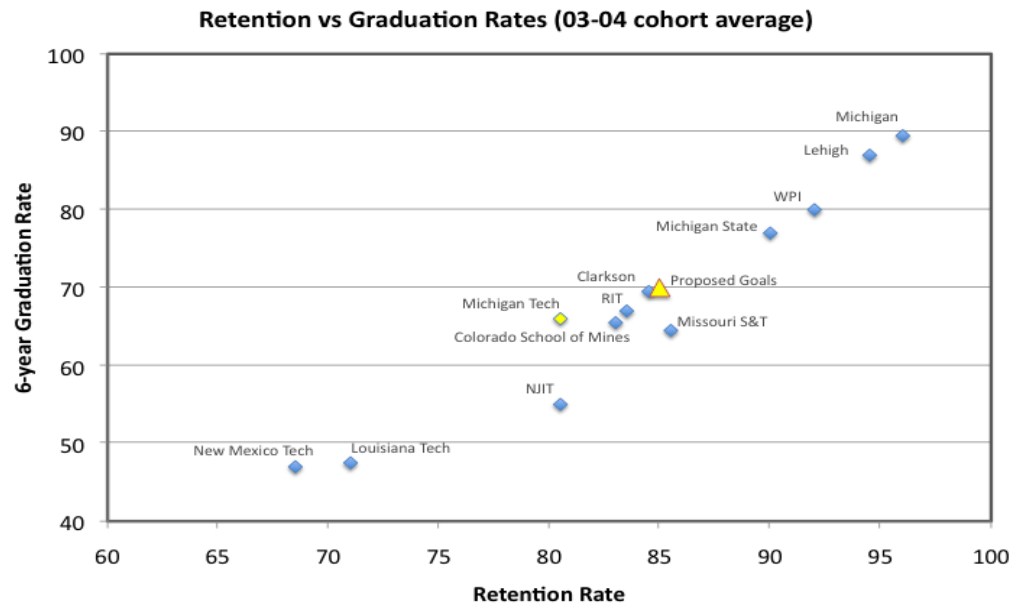
Programs, facilities and services that are aimed at supporting contacts with business and sharpening the entrepreneurial skills:

- Assistance with Licensing and patenting
- Investing Research Excellence Funds in idea development
- Investing corporate gifts in product research
- MTESC/SI Michigan Tech Entrepreneurial support corporation,
- Superior Innovations Corporation
- Michigan Tech Enterprise Corporation SmartZone
- Applied Portfolio Management Program in Business

5. Enable Student Success

Michigan Tech is committed to the success of each unique student

Michigan Tech is committed to accountability, efficiency, and efficacy. Low retention and graduation rates can reflect waste of university and public resources. High placement rates (job, graduate school or military service), and high rates of high impact practices such as student enterprise program, honors program, undergraduate research and study abroad reflect accountability and efficacy.

Retention vs Graduation Rates (03-04 cohort average)

6. Fuse Intellectual Disciplines

Michigan Tech creates knowledge by transcending academic disciplines

Strategic Faculty Hiring Initiatives

- Sustainability
- Computational Discovery and Innovation
- Next Generation Energy Systems
- Human Health Education and Research
- Water
- Transportation

7. Be Socially Embedded

Michigan Tech connects with communities through mutually beneficial partnerships

8. Engage Globally

Michigan Tech engages with people and issues locally, nationally, and internationally

(.......ran out of steam)

999. Be a Place for the Arts:

"When power leads man towards arrogance, poetry reminds him of his limitations. When power narrows the areas of man's concern, poetry reminds him of the richness and diversity of his existence. When power corrupts, poetry cleanses. For art establishes the basic human truth which must serve as the touchstone of our judgment". (John F. Kennedy)

Big challenges/design tasks we need to address together, administration, faculty, staff.

MIT President L. Rafael Reif :

[historical note: MIT's *Open Courseware* project (puts all of its educational material online; available at no cost to anyone with an Internet connection) started a decade ago; the material had been accessed by more than 100 million individual learners; number of learners was growing by almost 1 million per month; predates the MOOCs by 10y]

University experience has three components: The first is life on campus: living in dorms and hanging out with other students. The second is the classroom lecture**. And the third is the smaller group discussion required for projects and in labs, where he thinks "the real education occurs."**