The role of Renovation in Teaching Thermal Science to meet societal challenges

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- ✓**Students, faculty and administrators should work together to fully exploit new digital technologies for faster information flow, interactive communication, supporting innovation and evolving diverse curricula.**

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Exploit New Digital Technologies

New technologies using digital tools, and interactive environment to teach and allow for faster communication and information flow.

The students may adopt new technologies faster than the educators**. In order to secure the attention of the student and get them interested in thermal science, there should be a fast tract adoption of advance tools** (such as smart phones, iPods and so), and more dynamic environment using social media (twitter, Facebook, and so).

The faculty should be flexible, knowledgeable and should participate in technological developments.

The administrative should keep in mind that their common interest with the faculty is teaching and the student's learning. **The faculty also should receive the necessary support in learning digital tools and social media.**

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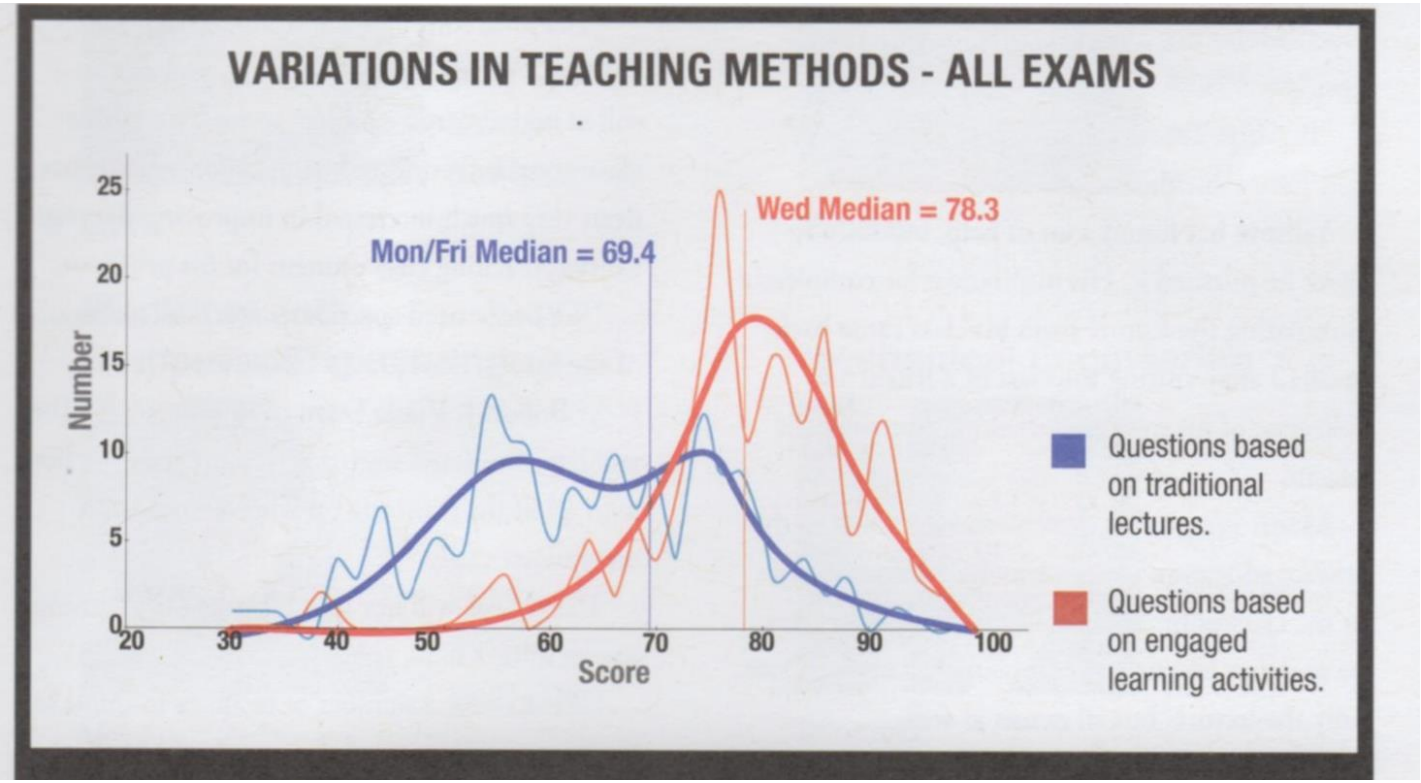
Evolving Curricula:

Continuous change of curricula to satisfy the future needs.

Online Learning: The students should be directed to engaged self-learning, rather than a traditional classroom lectures by the educators. **Thermal problem based engaged learning will teach them to search, and teach them to self educate themselves.**

Individualized Curriculum: There could be a need for "individualized" curriculum based on ability, interest, strength and weaknesses of each student **rather than "one for all" type of curriculum.**

Strategy and investments in digital technology for faculty and student development are necessary. For **a Sustainable University Education should a hybrid form** of university be created **which combines open online teaching with traditional but problem based teaching?**



From Michigan Engineer, The University of Michigan, Spring 2014
Materials and Manufacturing class taught by Steve Yalisove

More effort should be spent to make tools available

(i) to aid the professors to integrate science and math knowledge such as chemistry, physics, statistics, materials science, political science, economics, or management and leadership into the thermal engineering.

(i) to integrate technological developments in thermal science and engineering to the evolving curriculum (such as within the capstone design projects)

in order to enhance learning and to stimulate the students' motivation to want to learn fast and therefore more.

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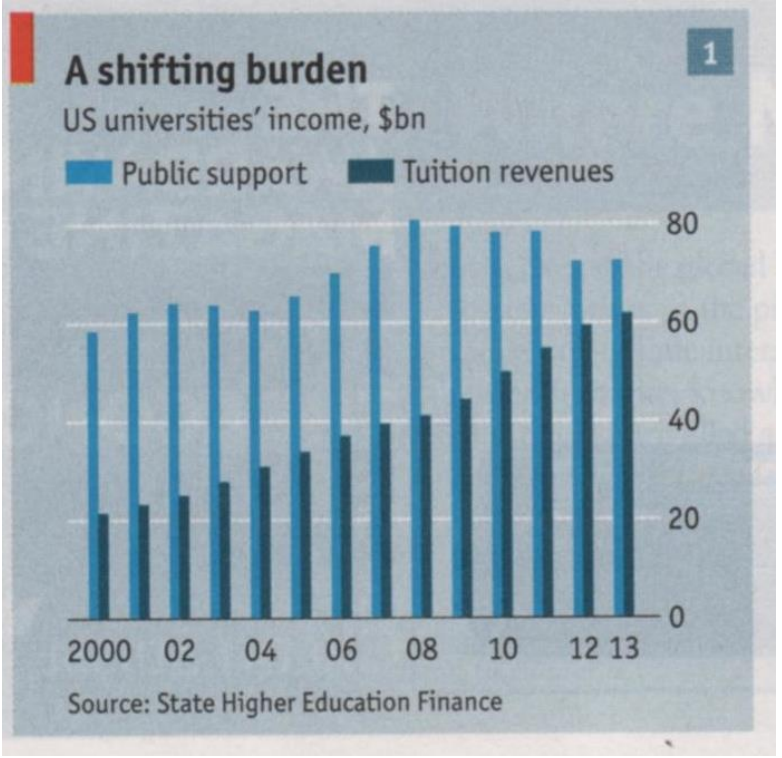
University education must continue to increase awareness of complex environmental, economical, social, political and technical issues to further societal development.

However can we reduce
The cost of higher education?



From The Economist, July 4th, 2014

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- ✓**To create global knowledge capital of thermal science, an environment to teach thermal science and engineering to public, and to scientists and engineers of other disciplines should be encouraged.**

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We should use the power of digital technology and continuously **create environment** to **teach thermal science and engineering to public, to other scientists and engineers**.

This will lead to promote communication to contribute towards, and to make everyone involved be innovative in thermal science and engineering.

The importance of teaching thermal science globally will be useful in forming a **"transdisciplinary**" team of researchers or engineers across multiple social perspectives and fields of knowledge to exchange ideas and work together to solve new problems.