Education 2035

Learning through Practical Applications

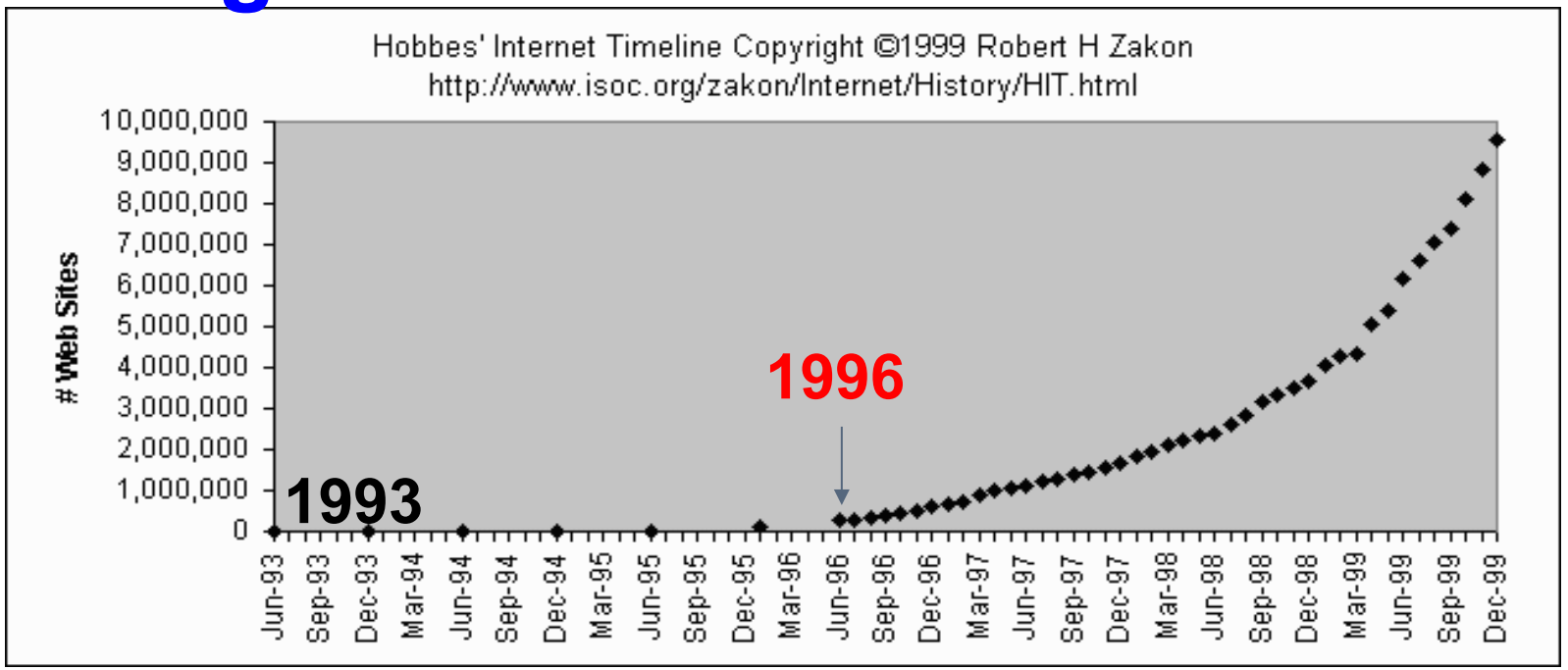
鄭嘉良
Chia-Liang Cheng,
Vice President
National Dong Hwa University

2015-GSEE/Taiwan Summit
Initiatives that Can Change Science Education
National Dong Hwa University, Hualien Taiwan
June 28-June 30, 2015

I arrived in NDHU in 1998

The following was a slide I used in one of my General Education courses (Physics and Natural Philosophy)

The growth of www

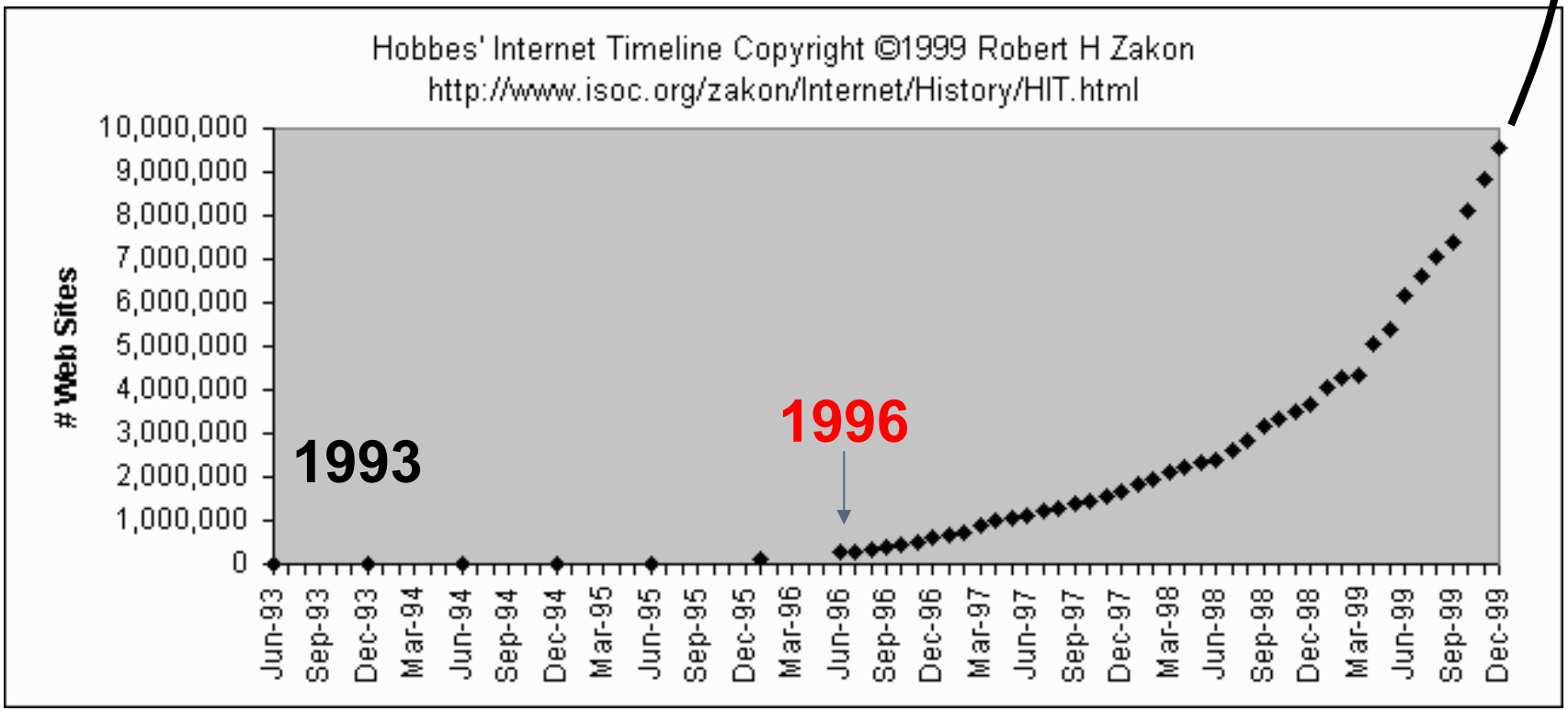


Then, as a young assistant professor, a green horn, I proposed to the Physics Department to terminate hard-copy journals, and start e-journals; this upset a lot people

Anyone expected this in 1996?

2015

The growth of www



SoftBank Lands $236M From Alibaba And Foxconn To Bring Its Pepper Robot To The World (June 18, 2015)

http://techcrunch.com/2015/06/18/alibaba-foxconn-softbank-and-pepper-walk-into-a-bar/#.74ggm8:3TnG

"By 2035, there could be more Peppers than students in the world" says SoftBank

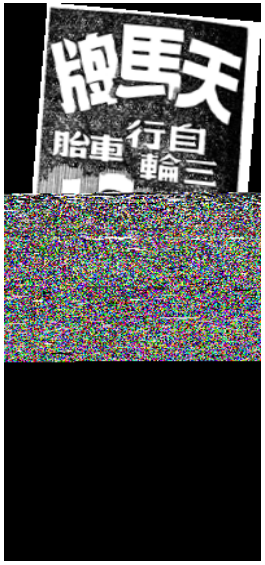
So, our students today are going to live in this world, not us

In Taiwan, we had hard time, but we had many No. ones too

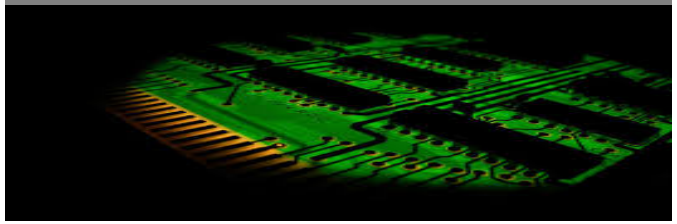
1950s

Other Taiwan No.1 export products: (Agriculture)

- Mushroom;
- Asparagus;
- Orchid
- …..



2015



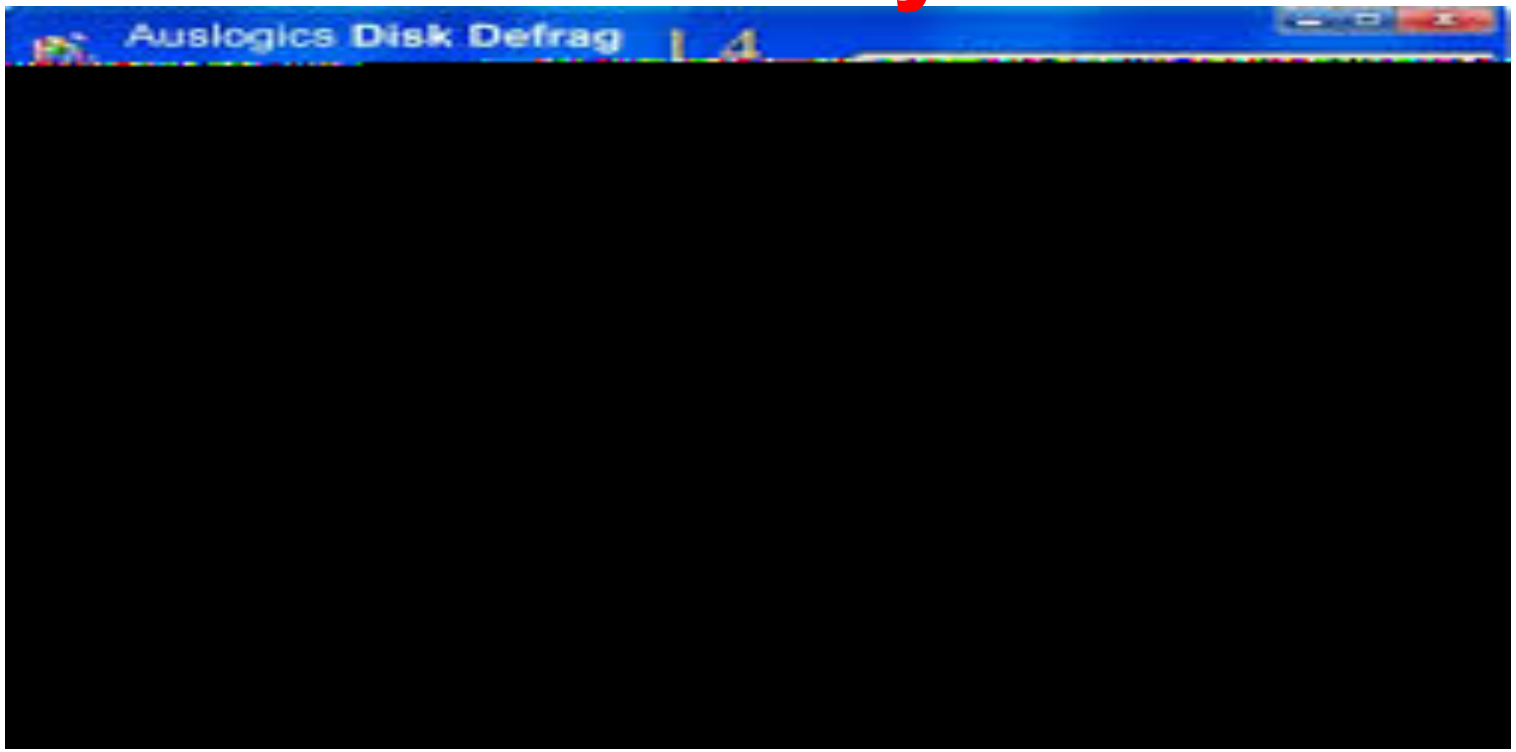
https://www.google.com.tw/search?q=Taiwan+industry

Udacity

We (the universities) need to get ready to accept online education

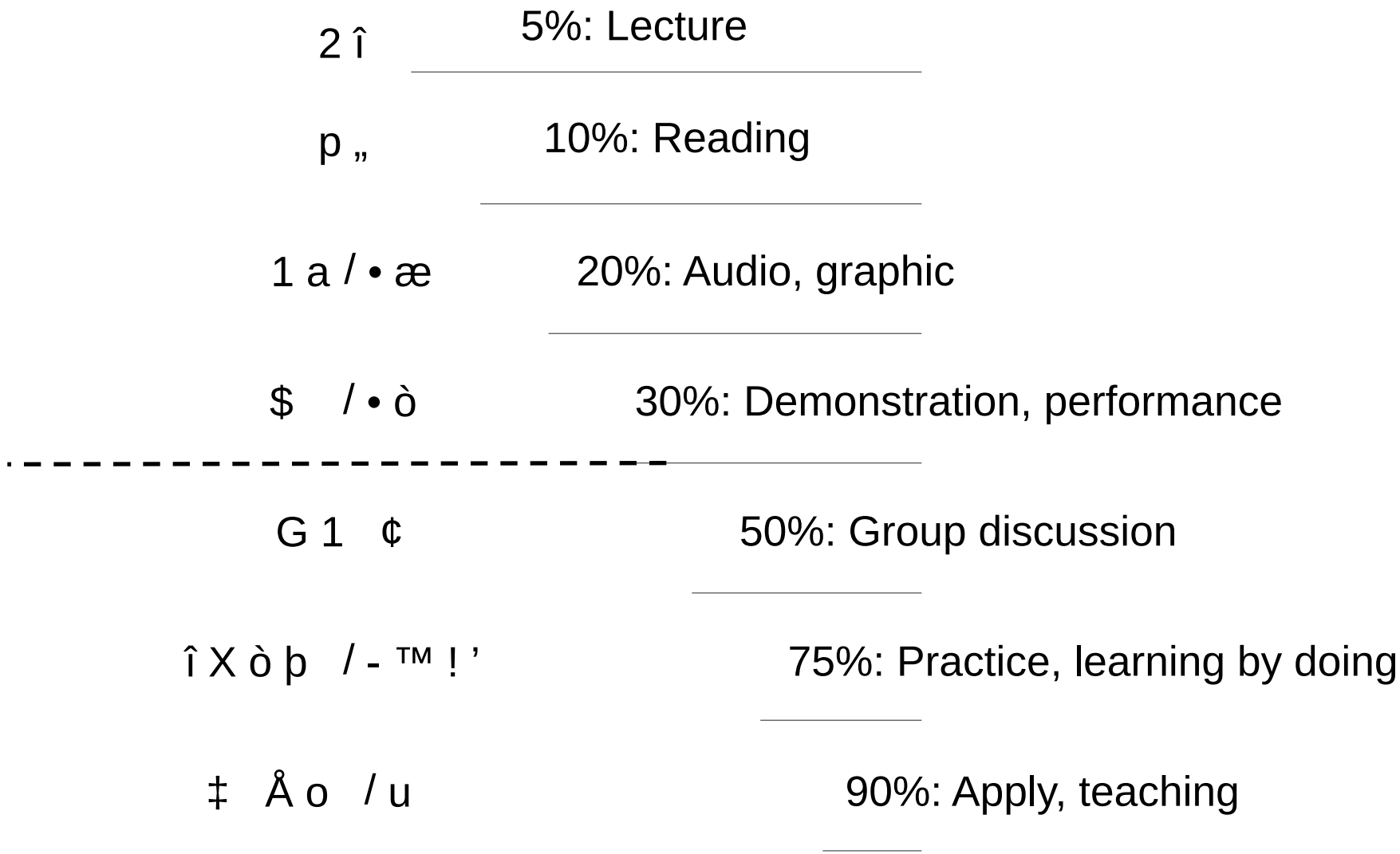
Source: http://www.fastcompany.com/3000042/how-coursera-free-online-education-service-will-school-us-all

This maybe how people learn in the 21th century

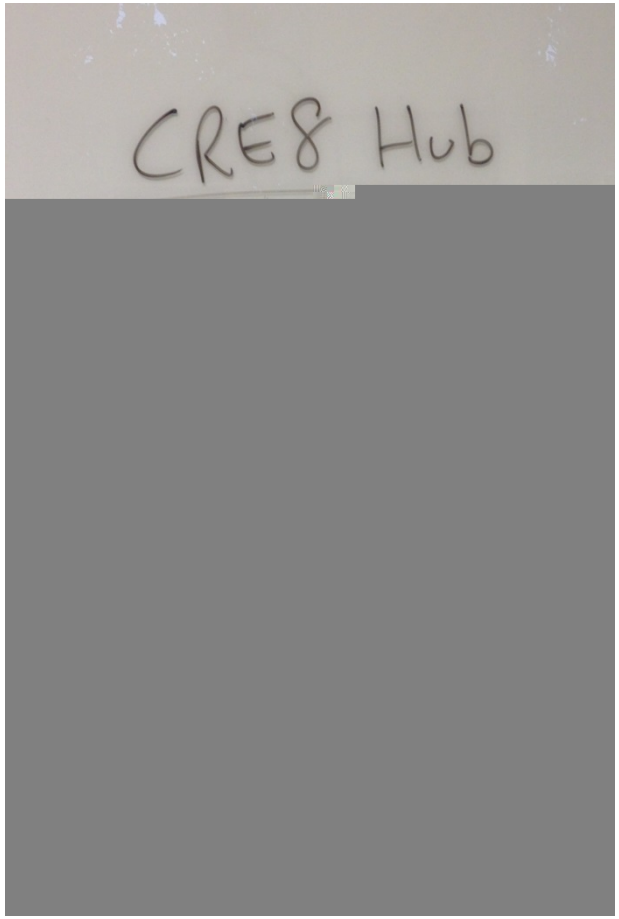


Source: Google/search disk formatting

Students do not necessary get their education from classroom and lectures

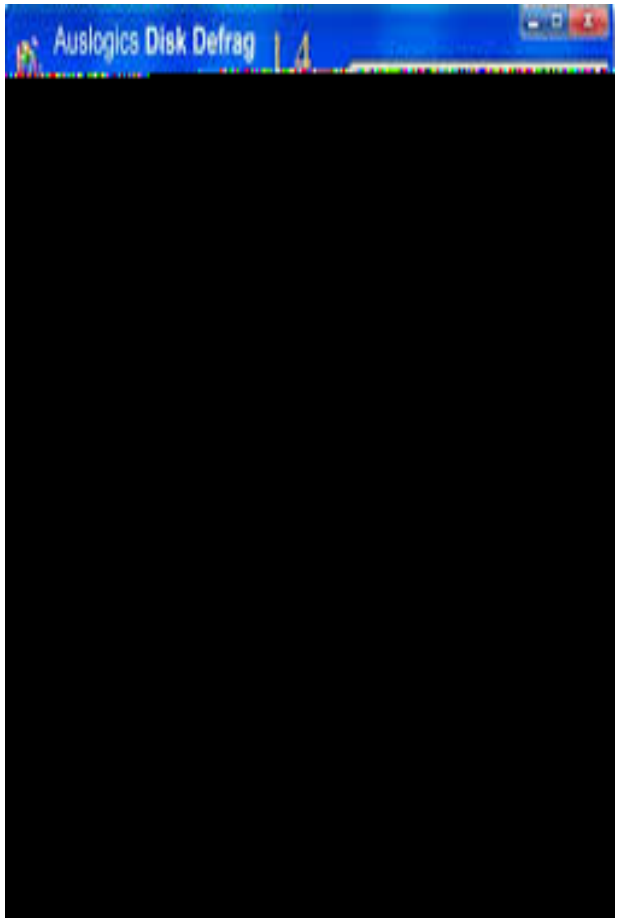


Source: http://portal.in.th/learntogether/pages/11329/



We need to fill in the gap between the disciplines

1. Allow our student to freely move around the trees
2. Promote Problem Oriented curriculum structure
3. Maybe we can fuse departments (like physics, chemistry, etc.) together



We need to believe there is a new way for our young generation to learn

1. Student-centered
2. Trust our young generation
3. Believe in students
4. Promote Problem-solving-oriented curriculum structure, by innovated projects

Master Academy

達人學苑

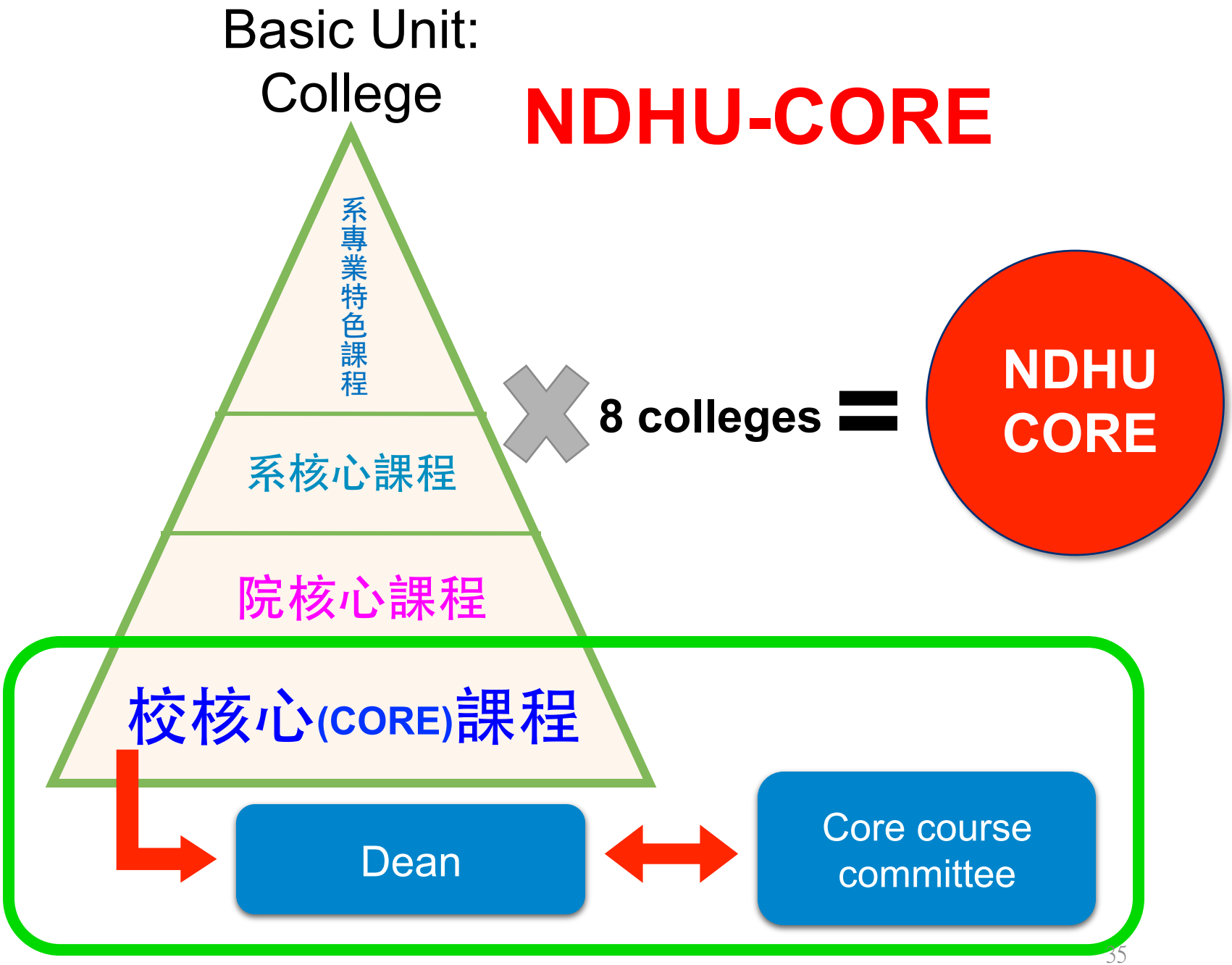
IF we can initiate a mindset change in higher education

2013 2ND Master Academy
2013 達人學苑 大師講座

1. Education to face the future: The -高等教育中能力與智慧的轉向問題
2. 5 US Academicians
   - 美國史丹佛大學應用物理系名譽教授Prof. Malcolm Beasley
   - 伊利諾伊大學香檳分校物理系Swandlund 講座教授Prof. Laura Greene，
   - 臺灣綜合大學系統總校長朱經武院士 (P Chu)
   - 臺灣積體電路股份有限公司張忠謀董事長 (M Chang, TSMC)

Reform Courses in the university level

1. Core structure for the General Education
2. Problem oriented courses
3. Group teaching


Basic Unit:
College
NDHU-CORE
系專業特色課程
系核心課程
院核心課程
校核心(CORE)課程
8 colleges
NDHU CORE
Dean
Core course committee

Form the team

Interact with students

自資系 宋秉明

業　師 康天德

業　師 陳文富

業　師 郭煒琦

In the classroom (in the restaurant)

In the field

In the kitchen

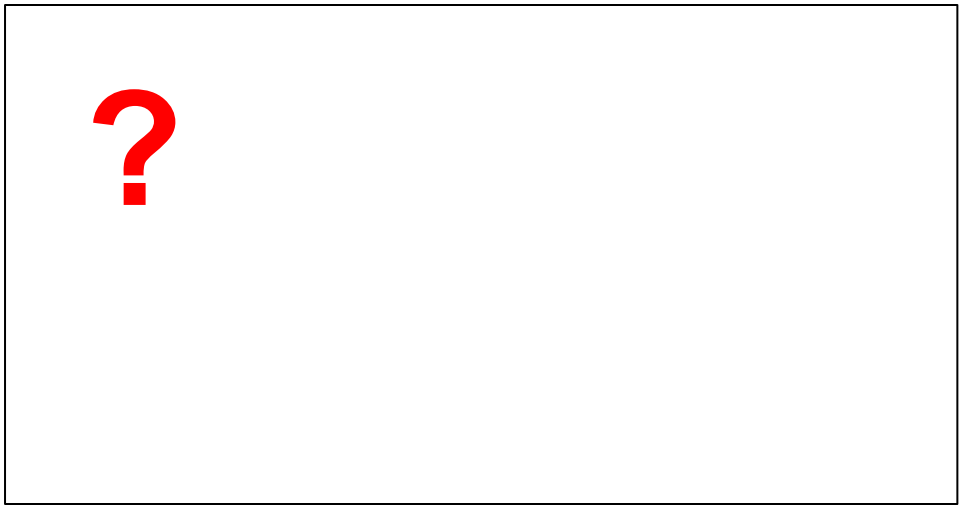
Eco-Kitchen App

I moved to NDHU in 1998 for some reasons

1. I am my wife need to live in the same city, that was required by our marriage.
2. For the next 30 years of my career, I don't think I can make much difference in Taipei. At that time, NDHU was empty, plenty of room for me.
3. Hualien was also quite empty, the mortgage is low and the land is big.
4. But, this could have been a **BIG MISTAKE**.

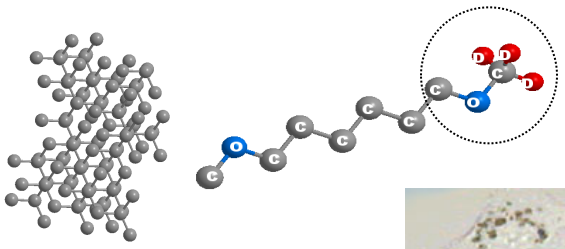
I have two questions to my students (when first met)

1. What do you want to say in your business card in 5 years?
2. What is your business card in 20 years

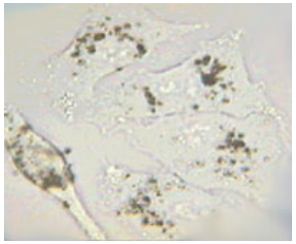


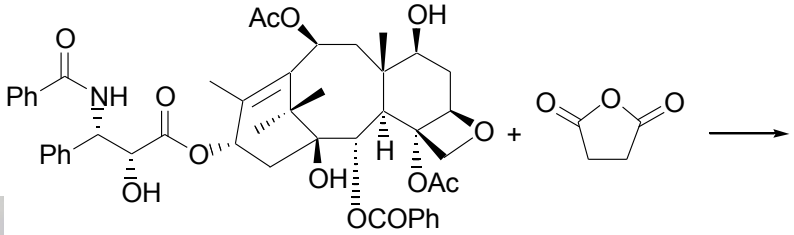
I work the “?” with the student

New perspective



Nanodiamond

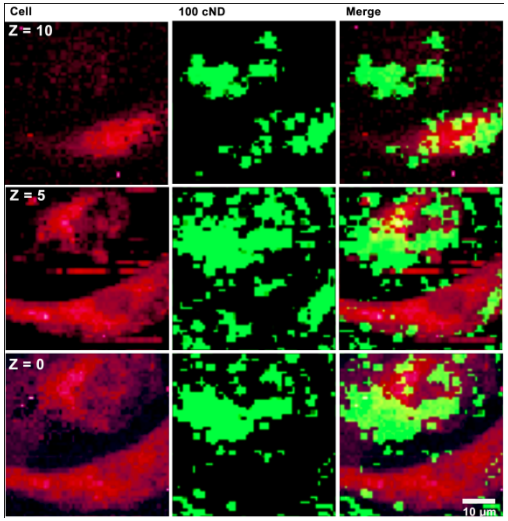


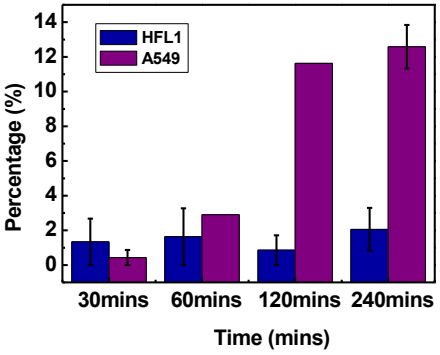


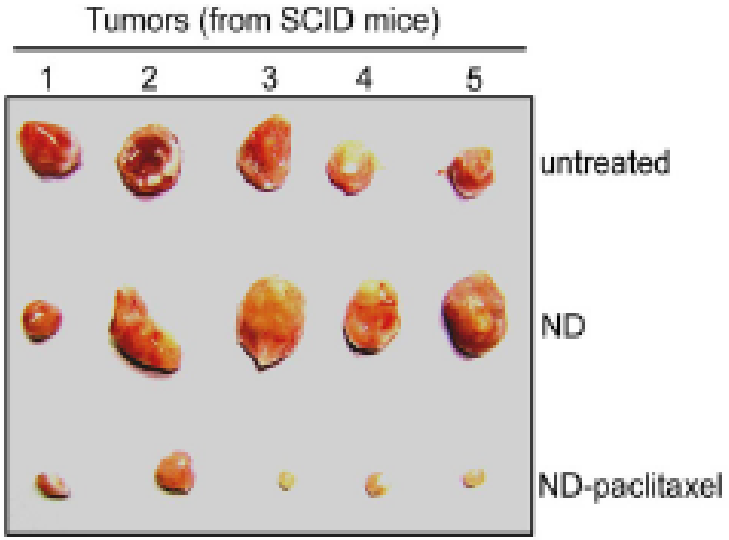
Taxol

Paclitaxel

Cancer cell







What I do

1. I take students when they are freshman
2. Run a group meeting, 52 times a year, with or without me around
3. Group meetings and emails are English only
4. All thesis must be written in English.
5. Train students' weakest muscle
6. Usually, students start a real project in second year
7. A student only gets one degree from me

These people helped to grow the IR-Lab

2013 IR-Lab BBQ

It is fun to see

1. Students made progress
2. A lot of time, the students are more ambitious than me, as I am too busy with other things
3. The student end up in place they want to, in their dream
4. The lab is a fun place for students to hang out
5. I and my students are a team, and a big family

Thank You