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Yong Zhao

Catching Up | or  
**Leading the Way**

American Education in the Age of Globalization

# World Class Learners

Educating Creative and  
Entrepreneurial Students



A Joint Publication



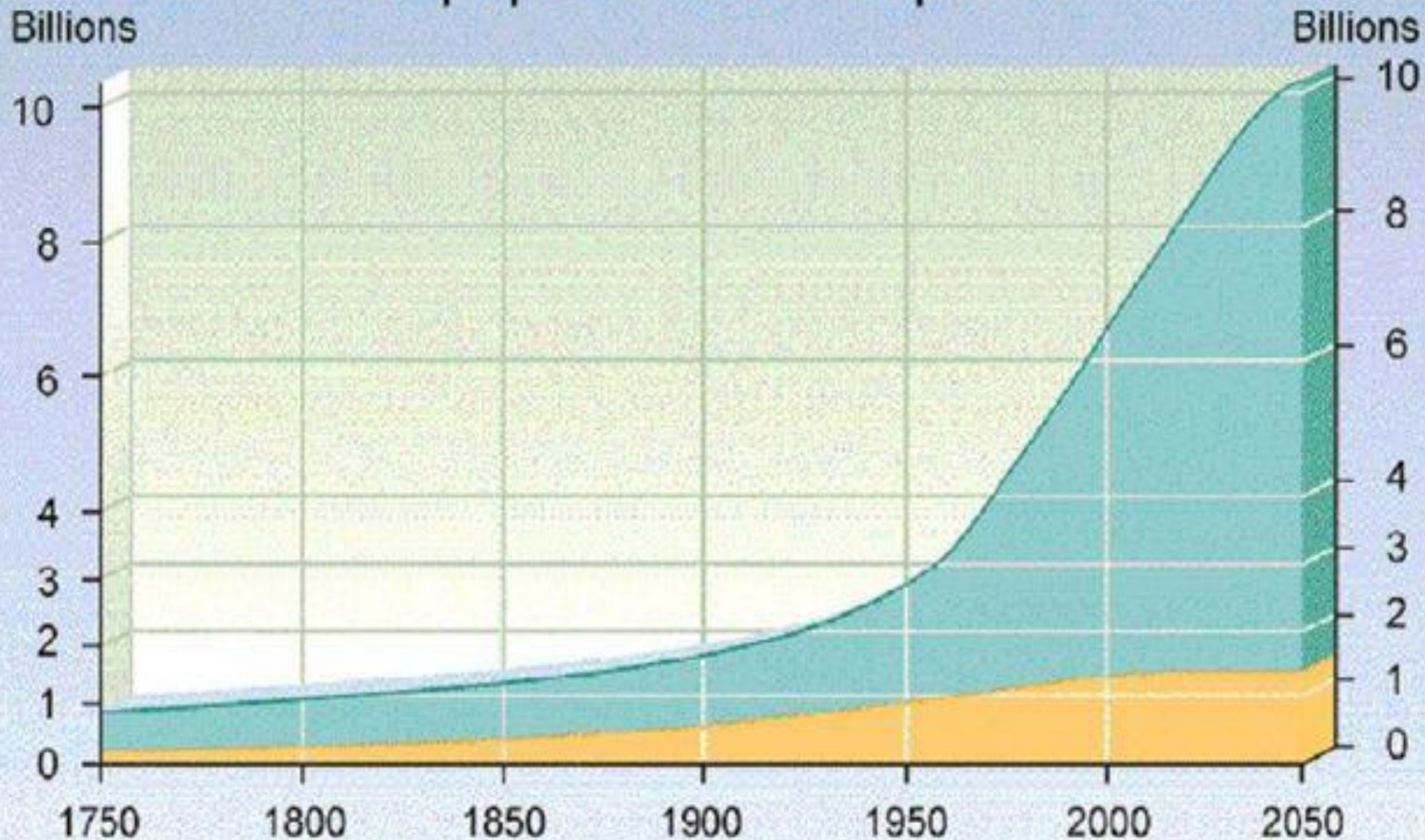
## Yong Zhao



# The future: The Age of Globalization



The stone age did not end because they  
ran out of stones

# World population development

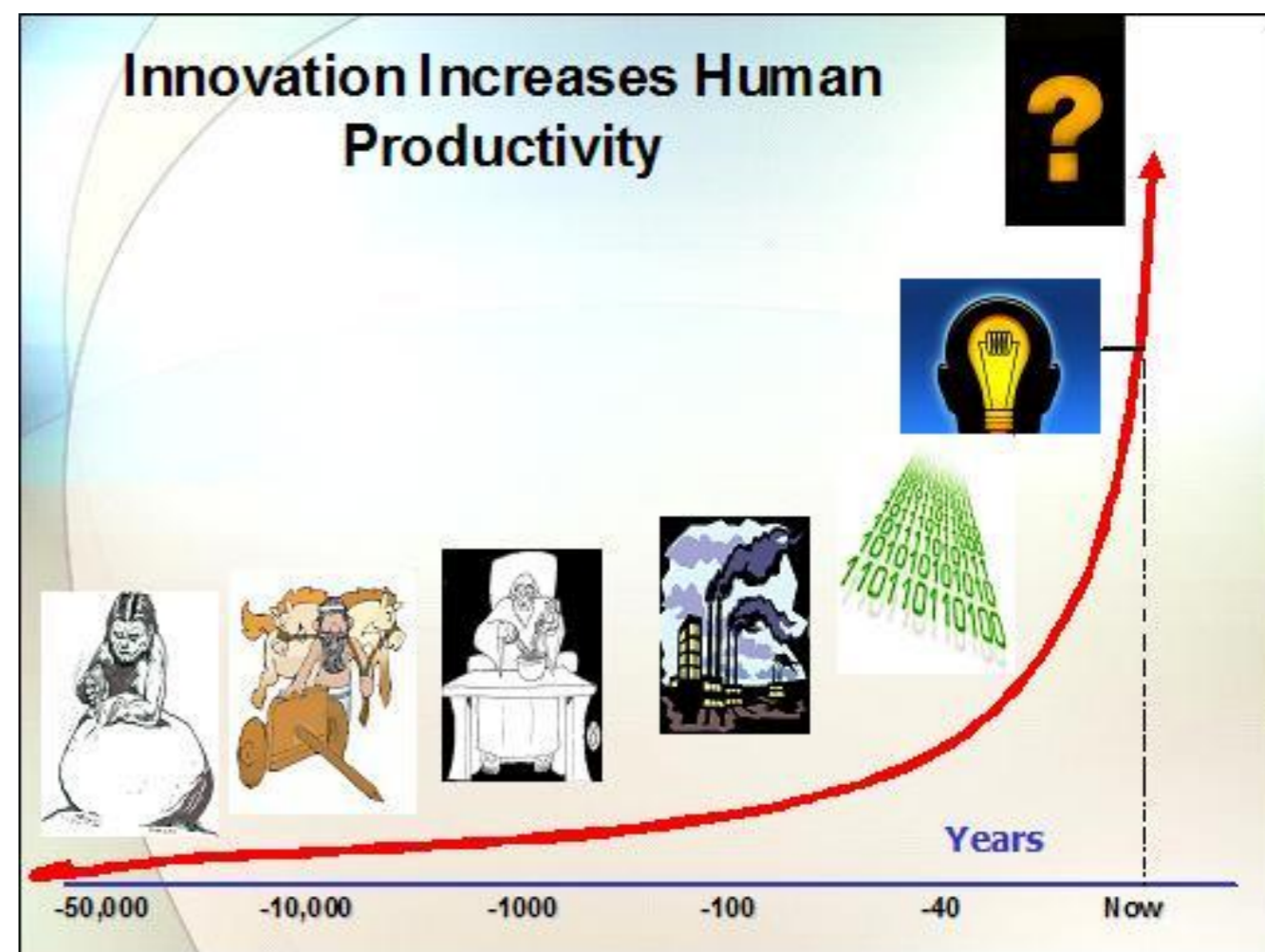
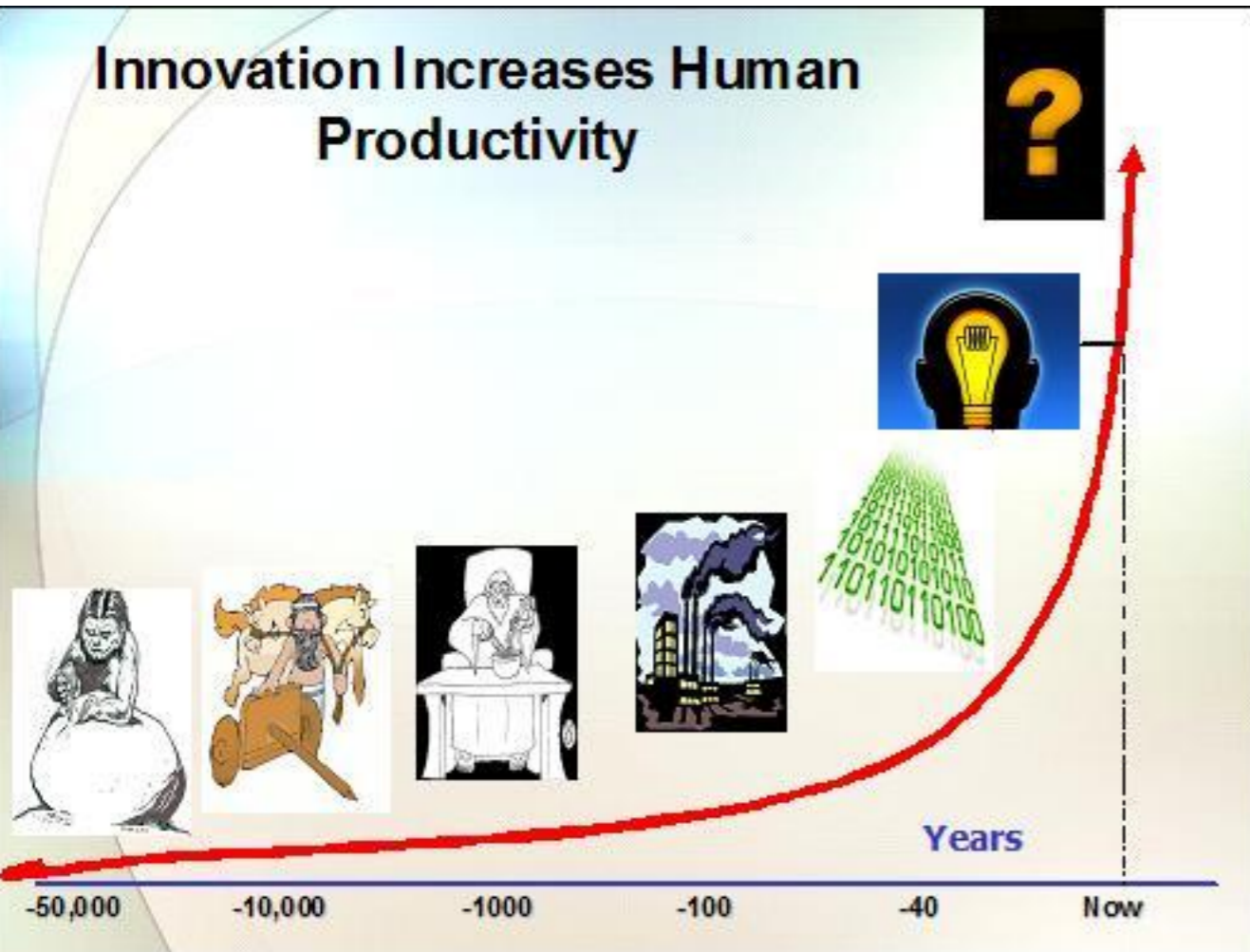
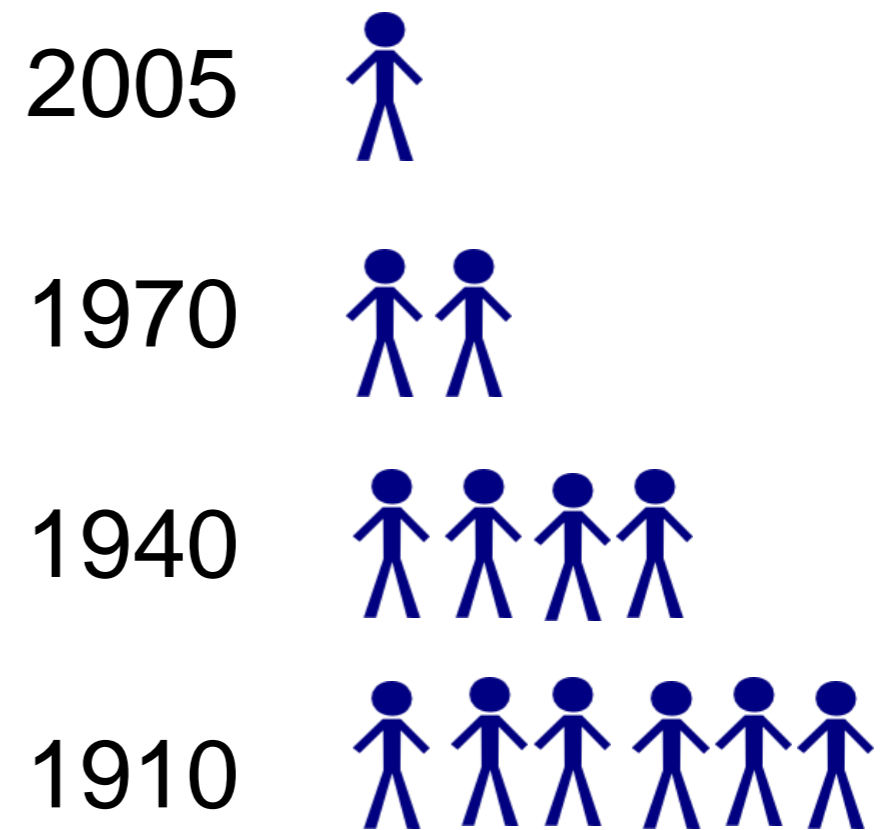


 Developing countries  
 Industrialized countries

# The world's workforce is rising steadily . .



To create the same value in the U.S.,  
it takes...



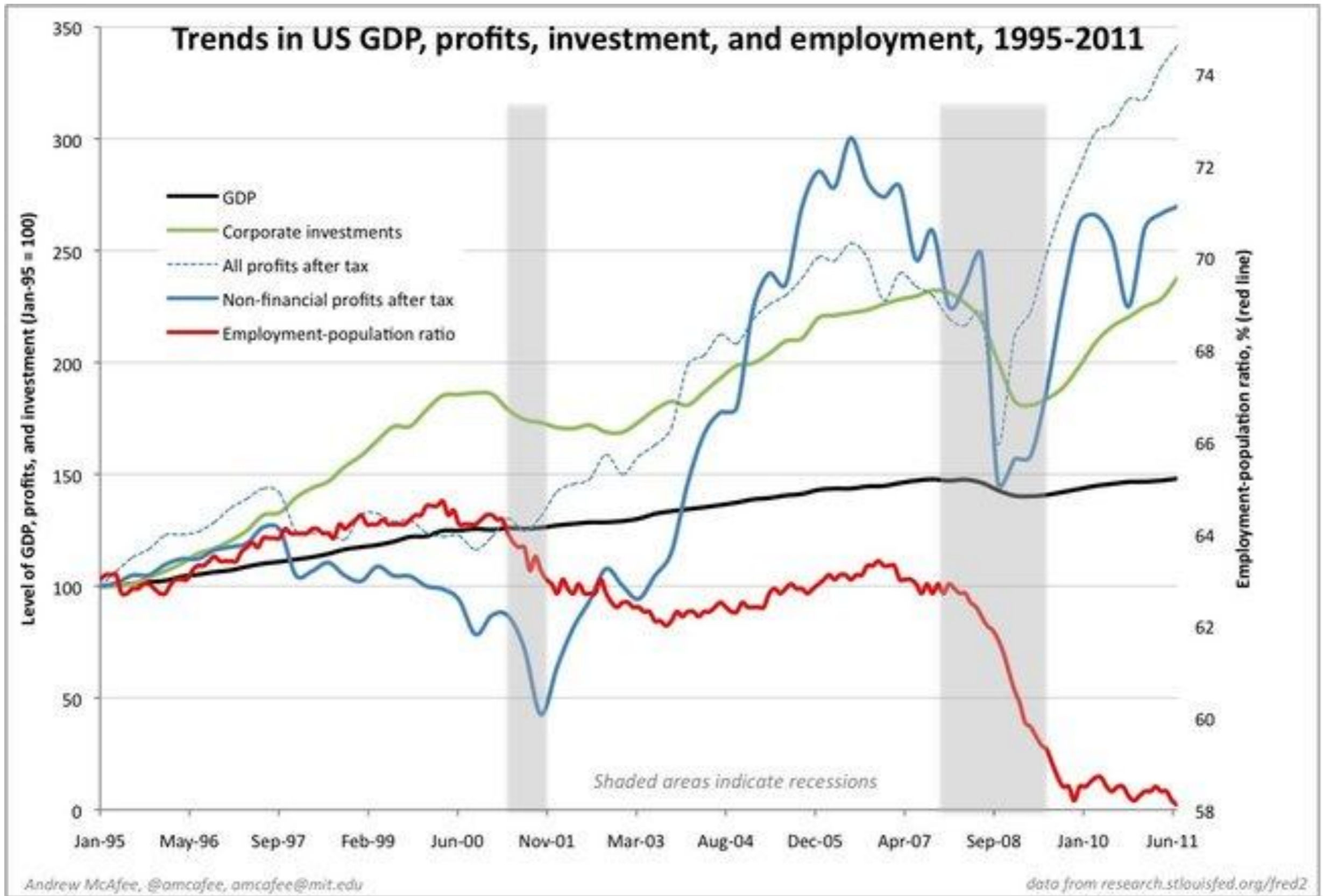
# U.S. Manufacturing: Output vs. Jobs

## January 1972 to August 2010

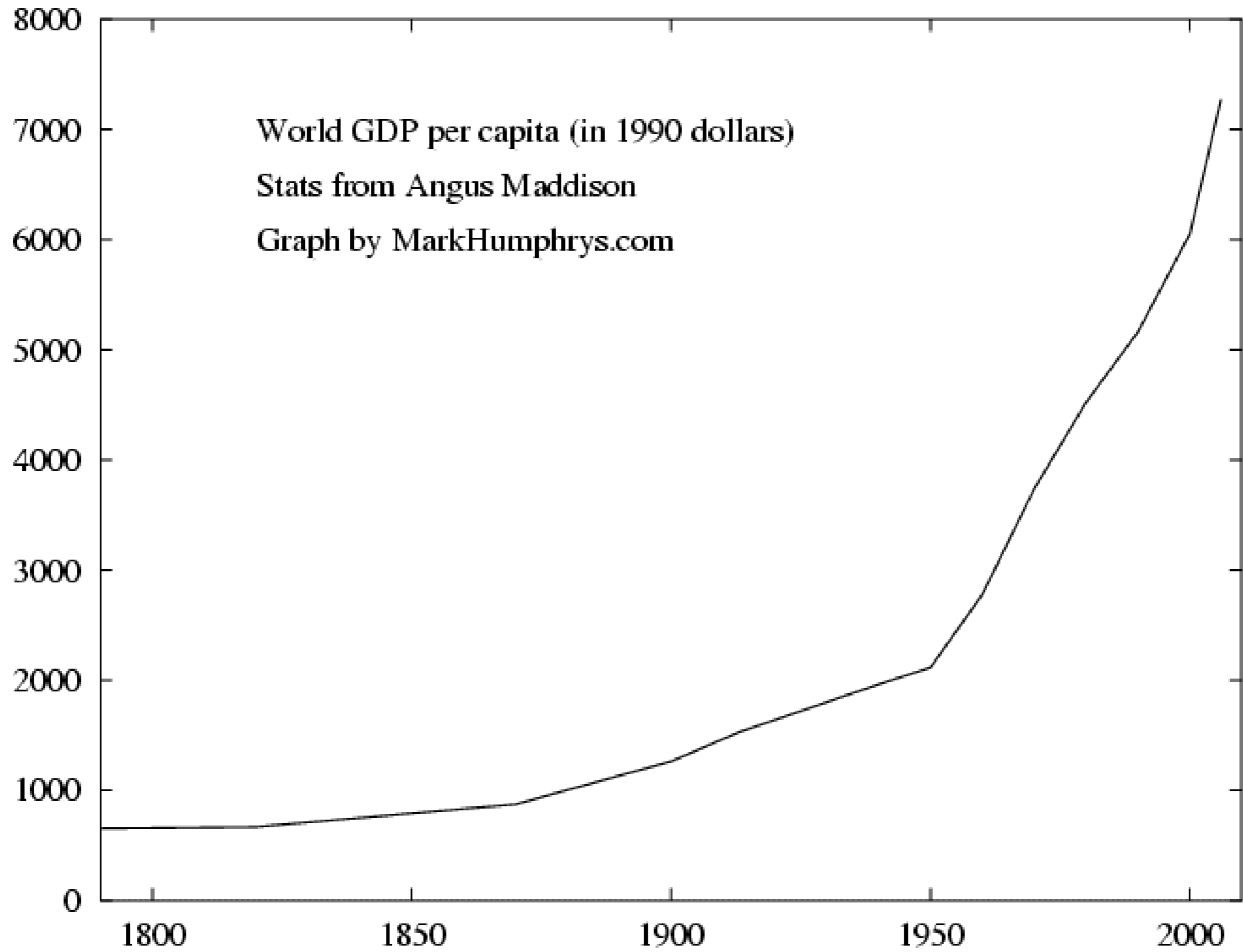


<http://www.dailymarkets.com/economy/2010/10/03/increases-in-u-s-worker-productivity-more-than-chinas-currency-responsible-for-loss-of-u-s-jobs/>

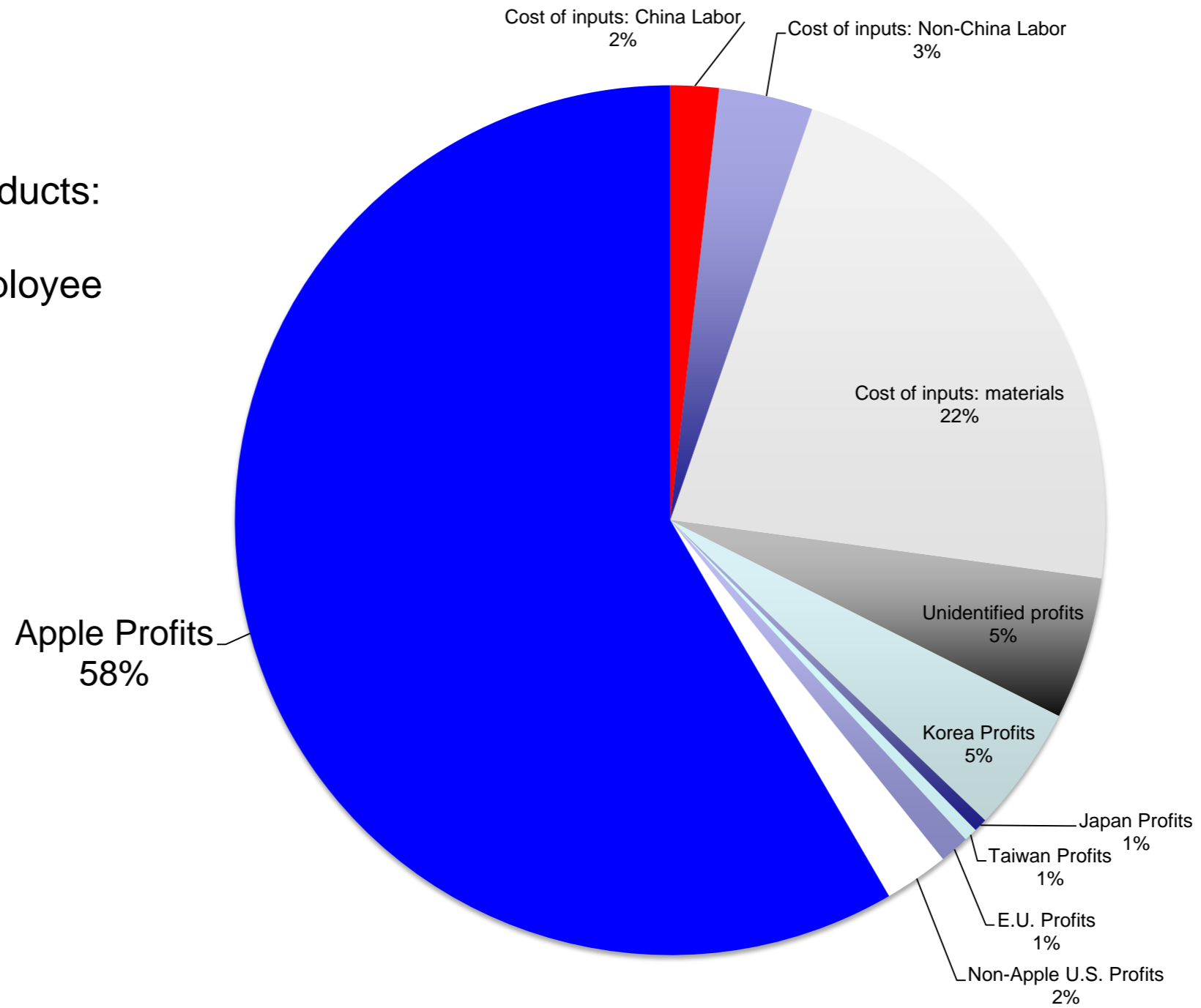





<http://campaignstops.blogs.nytimes.com/2012/07/08/the-future-of-joblessness/>



## Distribution of Value for iPhone 2010



Apple Employees:  
43,000 US, 20,000 overseas  
People working on Apple Products:  
700,000  
Apple profit: 400,000 per employee

**Employees**  **Entrepreneurs**

# **Mass Entrepreneurship**

**Business**

**entrepreneurs**

**Social entrepreneurs**

**Intrapreneurs**

**Policy entrepreneurs**

# Entrepreneurial Qualities

Confidence

Friends

Risk-taking

Passion

Creativity

Alertness to  
opportunity

Global  
competency

Uniqueness

Empathy

Individual differences  
Multiple intelligences

Cultural diversity

Curiosity, passion, creativity

Schooling

Employable  
skills

# Side Effects



## Drug Facts

### Active ingredient (in each tablet)

Chlorpheniramine maleate 2 mg.....Antihistamine

### Purpose

**Uses** temporarily relieves these symptoms due to hay fever or other upper respiratory allergies: ■ sneezing ■ runny nose ■ itchy, watery eyes ■ itchy throat

### Warnings

Ask a doctor before use if you have

- glaucoma
- a breathing problem such as emphysema or chronic bronchitis
- trouble urinating due to an enlarged prostate gland

Ask a doctor or pharmacist before use if you are taking tranquilizers or sedatives

When using this product

- drowsiness may occur
- avoid alcoholic drinks
- alcohol, sedatives, and tranquilizers may increase drowsiness
- be careful when driving a motor vehicle or operating machinery
- excitability may occur, especially in children

If pregnant or breast-feeding, ask a health professional before use.

Keep out of reach of children. In case of overdose, get medical help or contact a Poison Control Center right away.

### Directions

adults and children 12 years and over	take 2 tablets every 4 to 6 hours; not more than 12 tablets in 24 hours
children 6 years to under 12 years	take 1 tablet every 4 to 6 hours; not more than 6 tablets in 24 hours
children under 6 years	ask a doctor

### Drug Facts (continued)

**Other information** ■ store at 20-25° C (68-77° F) ■ protect from excessive moisture

**Inactive ingredients** D&C yellow no. 10, lactose, magnesium stearate, microcrystalline cellulose, pregelatinized starch

THIS MEDICINE MAY AFFECT MENTAL ALERTNESS AND/OR COORDINATION. IF AFFECTED, DO NOT DRIVE A MOTOR VEHICLE OR OPERATE MACHINERY.



THIS MEDICINE MAY CAUSE DROWSINESS AND MAY INCREASE THE EFFECTS OF ALCOHOL. IF AFFECTED DO NOT DRIVE A MOTOR VEHICLE OR OPERATE MACHINERY.



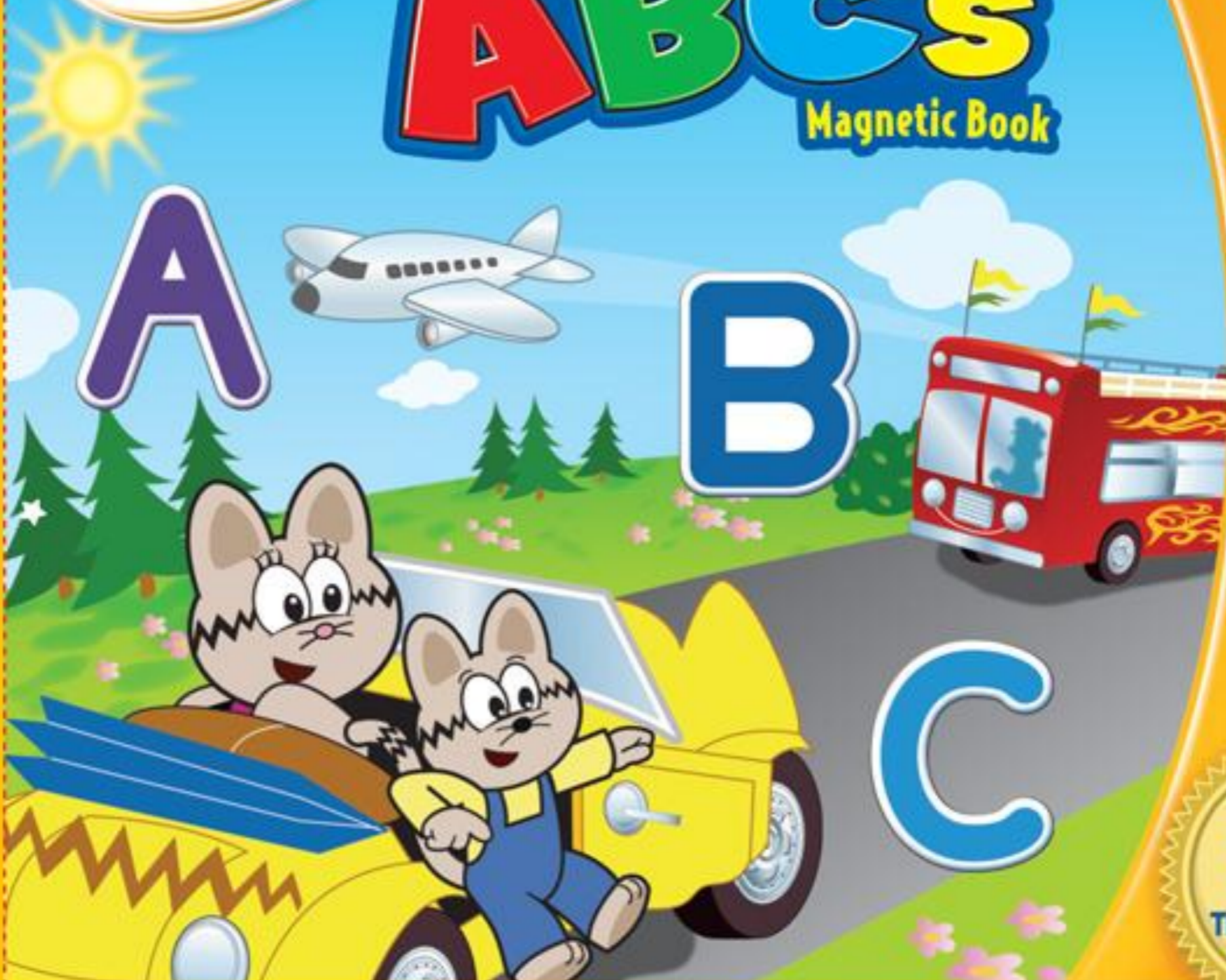


# Look and Learn

# ABCs

Magnetic Book

**Pre-K**  
Ages 3-4



Magnetic storybook that reinforces:

- Letter recognition
- Letter and picture association

Includes **26** letter magnets!



## WARNING

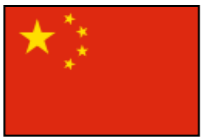
CHOKING HAZARD—Small parts  
Not for children under 3 years of age.

The Fun and Easy Way to Learn the ABCs!

Why Didn't China Have a  
Big Party?

# 2009 PISA Results

## Math



Shanghai, China



Singapore



Hong Kong, China



South Korea



Taiwan



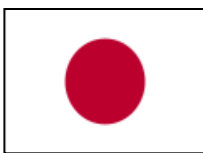
Finland



Liechtenstein



Switzerland

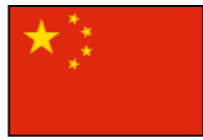


Japan



Canada

## Sciences



Shanghai, China



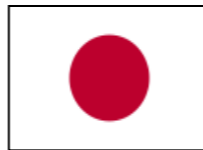
Finland



Hong Kong, China



Singapore



Japan



South Korea



New Zealand



Canada



Estonia



Australia

## Reading



Shanghai, China



South Korea



Finland



Hong Kong, China



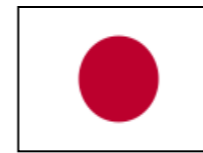
Singapore



Canada



New Zealand



Japan

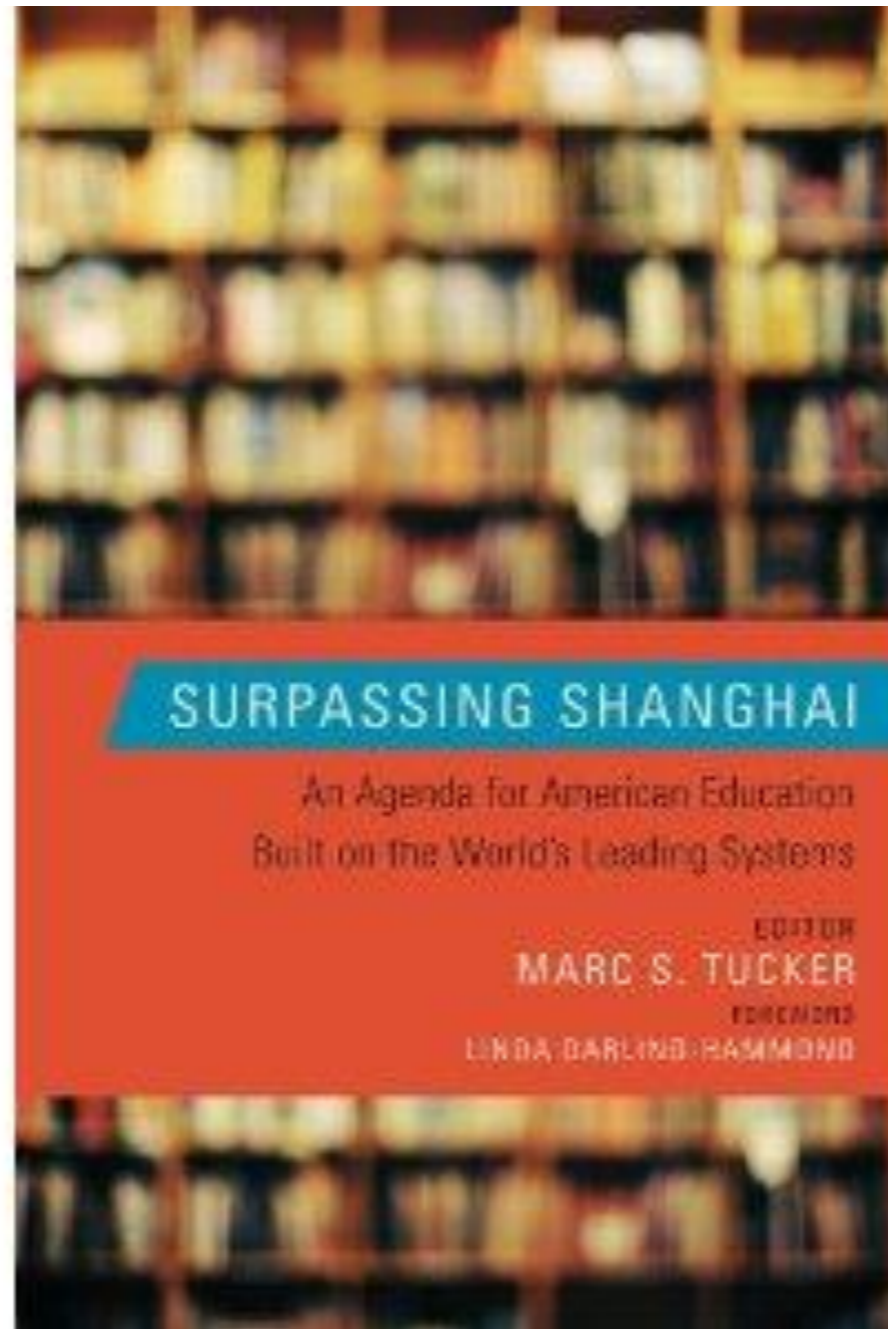


Australia



Netherlands

Arne Duncan: “A wake-up call”



Barack Obama: “A Sputnik moment”

A Grattan Institute report, to be released today, shows Australian performance has slipped since 2000, with maths students now **more than two years behind children in Shanghai** and one to two years behind children in Hong Kong, Singapore and South Korea.

--Sydney Morning Herald, 02-17-2012

<http://www.smh.com.au/national/education/australian-students-lag-asia-by-three-years-20120216-1tbt8.html#ixzz1me2MH9mL>

We've become a nation of wusses. The Chinese are kicking our butt in everything. If this was in China do you think the Chinese would have called off the game? People would have been marching down to the stadium. They would have walked and **they would have been doing calculus on the way down...**

--Former Pennsylvania Governor Ed Rendell on the rescheduling of an NFL game, 2010

<http://voices.washingtonpost.com/44/2010/12/ed-rendell-were-a-nation-of-wu.html>

I am happy to confess I'd like us to implement a cultural revolution just like the one they've had in China...Like Chairman Mao, we've embarked on a **Long March** to reform our education system.

--Michael Gove, British Secretary of State for Education

<http://www.telegraph.co.uk/education/8227535/Michael-Gove-my-revolution-for-culture-in-classroom.html>

Qian Xuesheng: “Why doesn’t China have great talents?”



Wen Jiabao: “China must have entrepreneurs like Steve Jobs”

Kai-fu Lee: The next Apple or Google will appear, but not in China...unless it abolishes its education.

# Real Dragon or Paper Tiger: Patent filings in 2008

U.S.A. 400,769 filings  
Japan 502,054 filings  
China 203,481 filings

Europe 14,525 filings  
U.S.A. 14,399 filings  
Japan 13,446 filings  
China 473 filings

In 2010 China accounted for

20% of the world's population

9% of the world's GDP

12% of the world's R&D expenditure

1% of the patent filings with or patents granted by any of the leading patent offices outside China.

50 % of the China-origin patents were granted to subsidiaries of foreign multinationals

Source: Chinese Innovation is a Paper Tiger

[http://online.wsj.com/article/SB10001424053111904800304576472034085730262.html?mod=googlenews\\_wsj](http://online.wsj.com/article/SB10001424053111904800304576472034085730262.html?mod=googlenews_wsj)



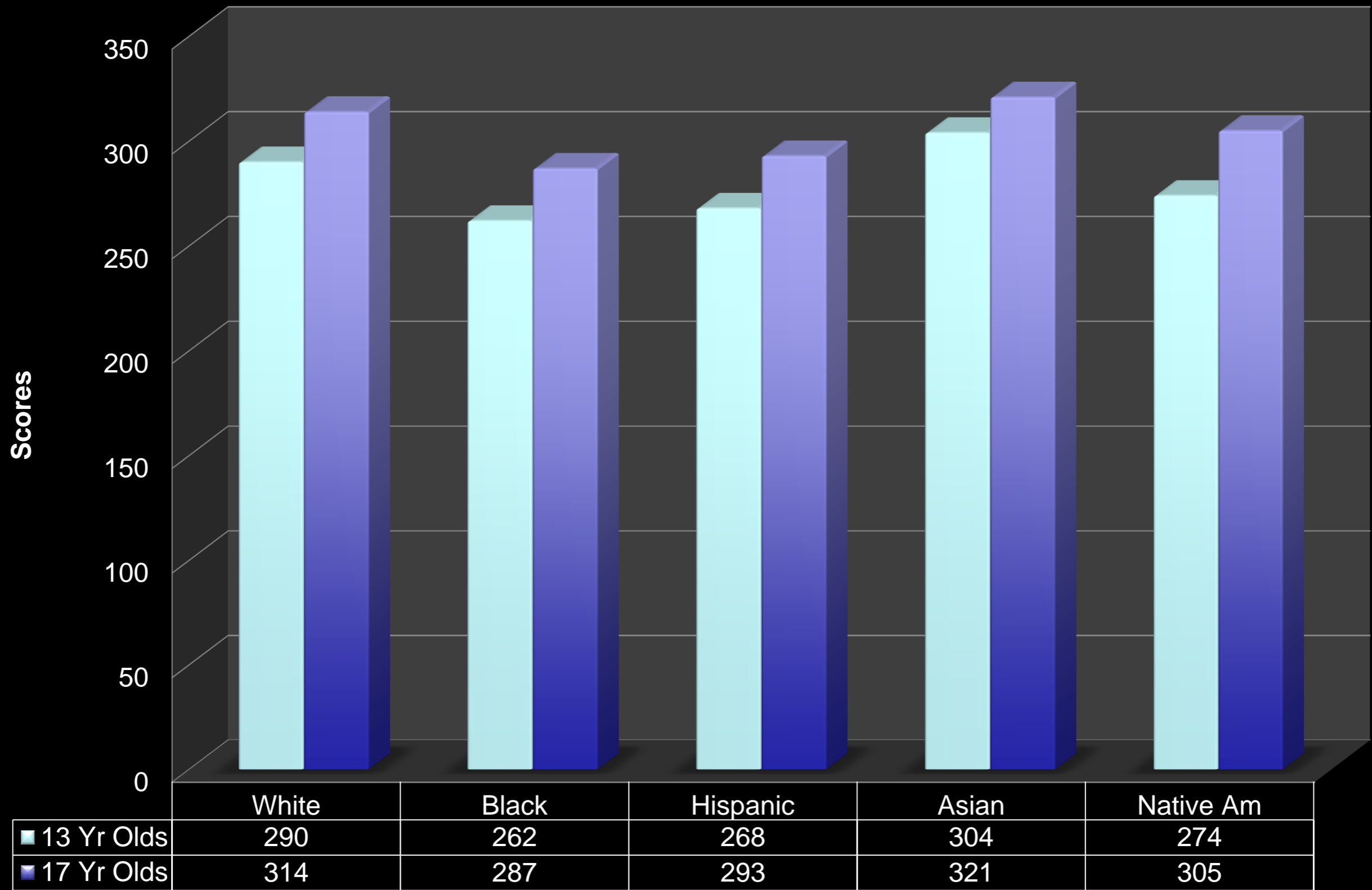


Steve Wozniak: Apple couldn't emerge in societies like Singapore where 'bad behavior is not tolerated' and people are not taught to think for themselves.

Alexis Ong: Wozniak's comments are really a scathing indictment of the Singapore education system, its strictly regimented curriculum and by-rote study techniques that sustain the city's "formal culture."

Why Aren't the Model  
Minority Happy?

## 2008 NAEP Math Scores by Race/Ethnicity



# Asian Americans

- 5% of the US population
- 15 to 25% of Ivy League enrollment
- 24% at Stanford
- 46% at UC Berkeley
- 64 percent of Asians versus 52 percent for Caucasians want to hold top positions
- **2% of total 5,520 board seats of the Fortune 500 (98 of them have Asians on their board)**

[http://www.worklifepolicy.org/documents/TopAsianTalent\\_PressRelease\\_7.20.11.pdf](http://www.worklifepolicy.org/documents/TopAsianTalent_PressRelease_7.20.11.pdf)

<http://aapress.com/business/report-only-96-asians-hold-fortune-500-board-seats/>

Why Is the U.S. Still Here?

## Alexei vs Stephen: Curriculum and Time

Inside photos showed Alexei doing complicated experiments in physics and chemistry and reading aloud from *Sister Carrie*.

# 1958



Stephen, by contrast, retreated from a geometry problem on the blackboard and the caption advised, "Stephen amused class with wisecracks about his ineptitude." Seated at a typewriter in typing class, Stephen tells us "I type about one word a minute."



**Our Nation is at risk. Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world.**

**the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people.**

**We are raising a new generation of Americans that is scientifically and technologically illiterate.**

*To Glenn Seaborg  
With appreciation*

**1983 Japan**

# Elephant vs. doctor: Aspirations



## 2 Million Minutes

*Bob Compton*

**Source:**

**<http://www.2minutes.com/pressblog6.html>**



# A Long History of Bad Test-takers

- **1960s**
  - FIMS: 12<sup>th</sup> out of 12 countries
  - FISS: 14<sup>th</sup> out of 18 countries
- **1970s/1980s**
  - SIMS: 12, 14, 12, 12 out of 15 (number systems, algebra, geometry, calculus)
  - SISS: 14<sup>th</sup> (biology), 12<sup>th</sup> (chemistry), 10<sup>th</sup> (physics) out of 14
- **1990s—2007: TIMSS (8<sup>th</sup> graders)**
  - 28<sup>th</sup> out of 42 in 1995
  - 15<sup>th</sup> in 2003
  - 9<sup>th</sup> in 2007

...America still has the largest, most prosperous economy in the world. (Applause.) No workers -- no workers are more productive than ours. No country has more successful companies, or grants more patents to inventors and entrepreneurs. We're the home to the world's best colleges and universities, where more students come to study than any place on Earth.

--President Obama, 2011 State of the Union Address

# Possible Explanations

Test scores



Asian Countries

USA

2003 TIMSS Results

Confidence

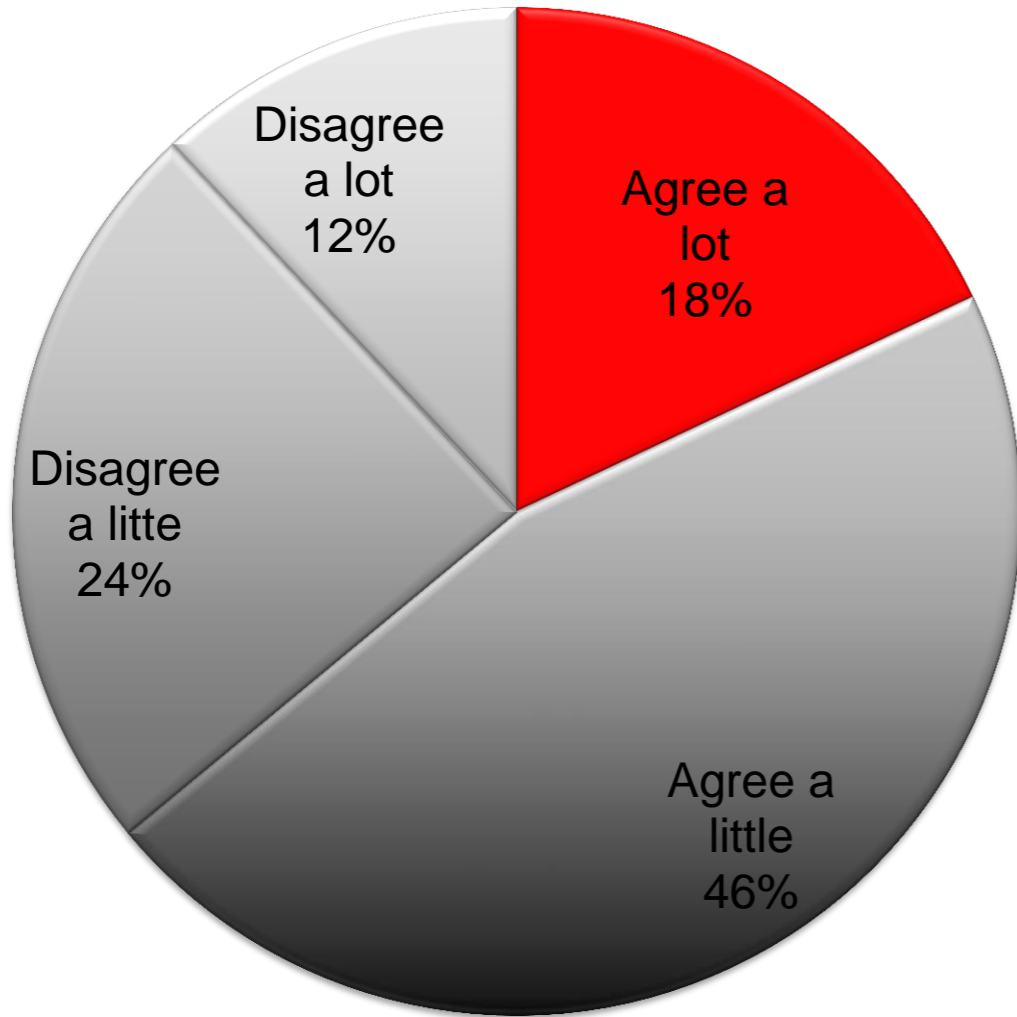


USA

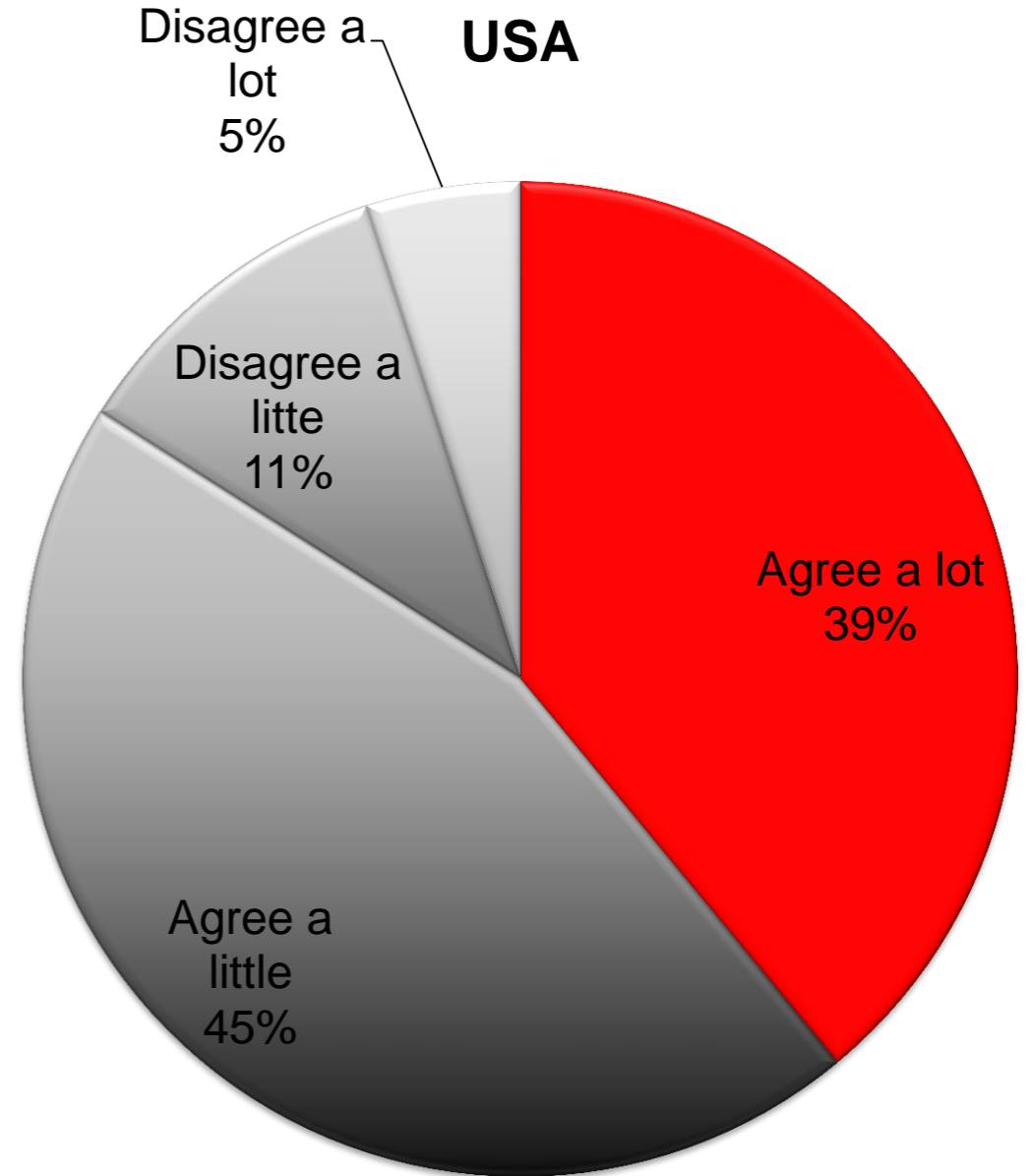
Asian Countries

2003 TIMSS Results

**Singapore**



**USA**



Responses to "I usually do well in Math"

## Correlations between TIMSS Math Score and Confidence and Enjoyment

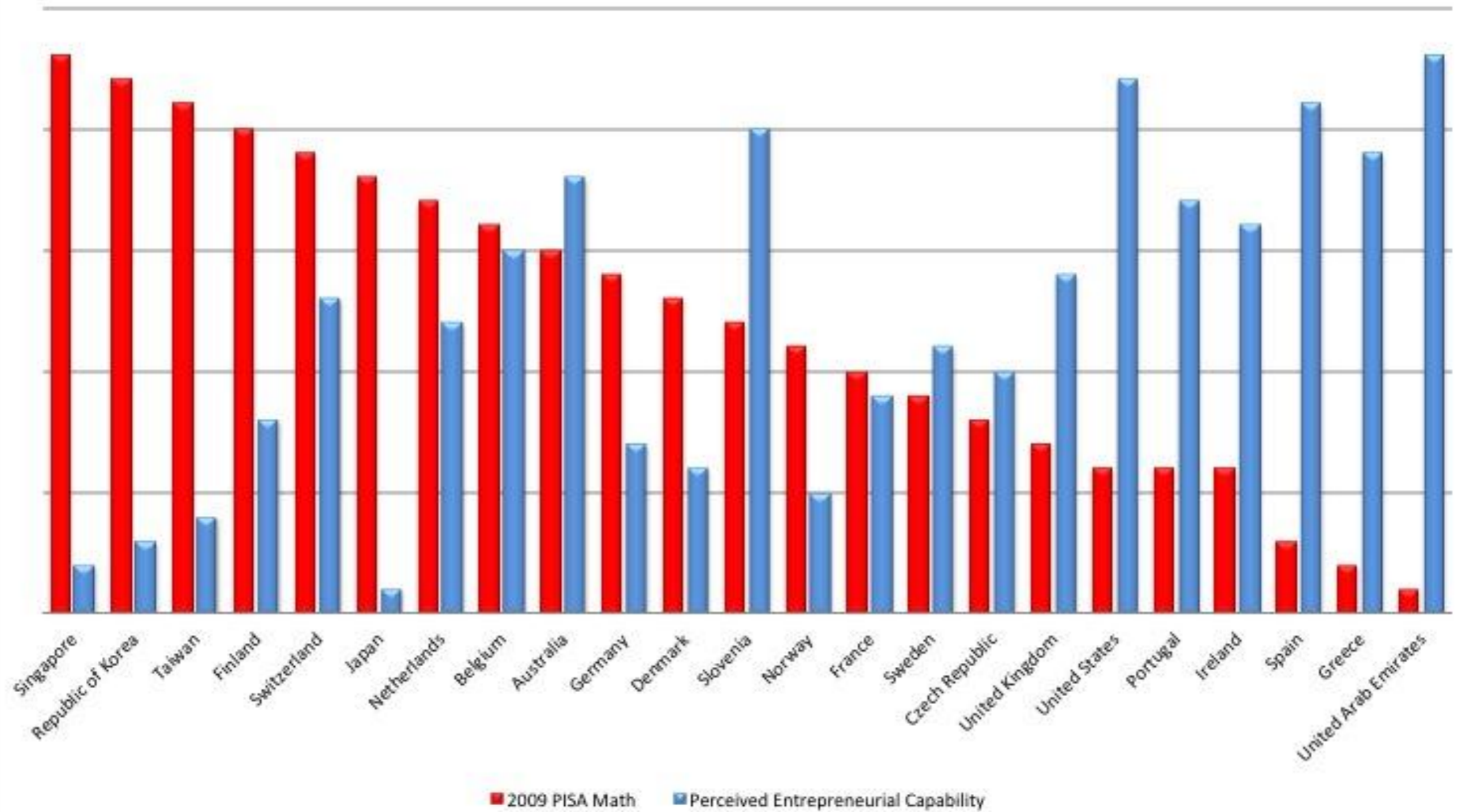
	Grade	Correlation
Confidence	4	-0.58
	8	-0.64
Enjoyment	4	-0.67
	8	-0.75

Tom Loveless (2006): How Well Are American Students Learning  
[http://www.brookings.edu/~media/Files/rc/reports/2006/10education\\_loveless/10education\\_loveless.pdf](http://www.brookings.edu/~media/Files/rc/reports/2006/10education_loveless/10education_loveless.pdf)

**It is a miracle that curiosity survives  
formal education.**

**--Albert Einstein**

## Ranking by PISA Math Score and Perceived Entrepreneurial Capability





# Correlations between PISA and Entrepreneurship Indicators

	PISA Reading	PISA Math	PISA Sciences
Perceived Capabilities	-.595**	-.586**	-.608**
Nascent Entre Rate	-.693**	-.636**	-.678**
New Biz Ownsp Rate	-.371*	-.374*	-.392*
Total Early Stage Entre Activity	-.658**	-.620**	-.658**

Data source: OECD PISA 2010, Global Entrepreneurship Monitor, 2010

Lady Gaga

# Lady Gaga



**If you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid.**

**--Albert Einstein**

**In our travels to China it was everywhere, that **laser-focus on education**...This public school in Shanghai where the children are two years old. By three they are in school from 8 until 4, already learning phrases in English...On average Chinese students attend schools 41 more days than American students a year and with extra lessons on the weekend, Chinese students receive 30% more hours of instruction.**

**--ABC World News with Diane Sawyer, 2010**

<http://abcnews.go.com/Politics/china-debuts-top-international-education-rankings/story?id=12336108#.Tz5va0xU2Fc>

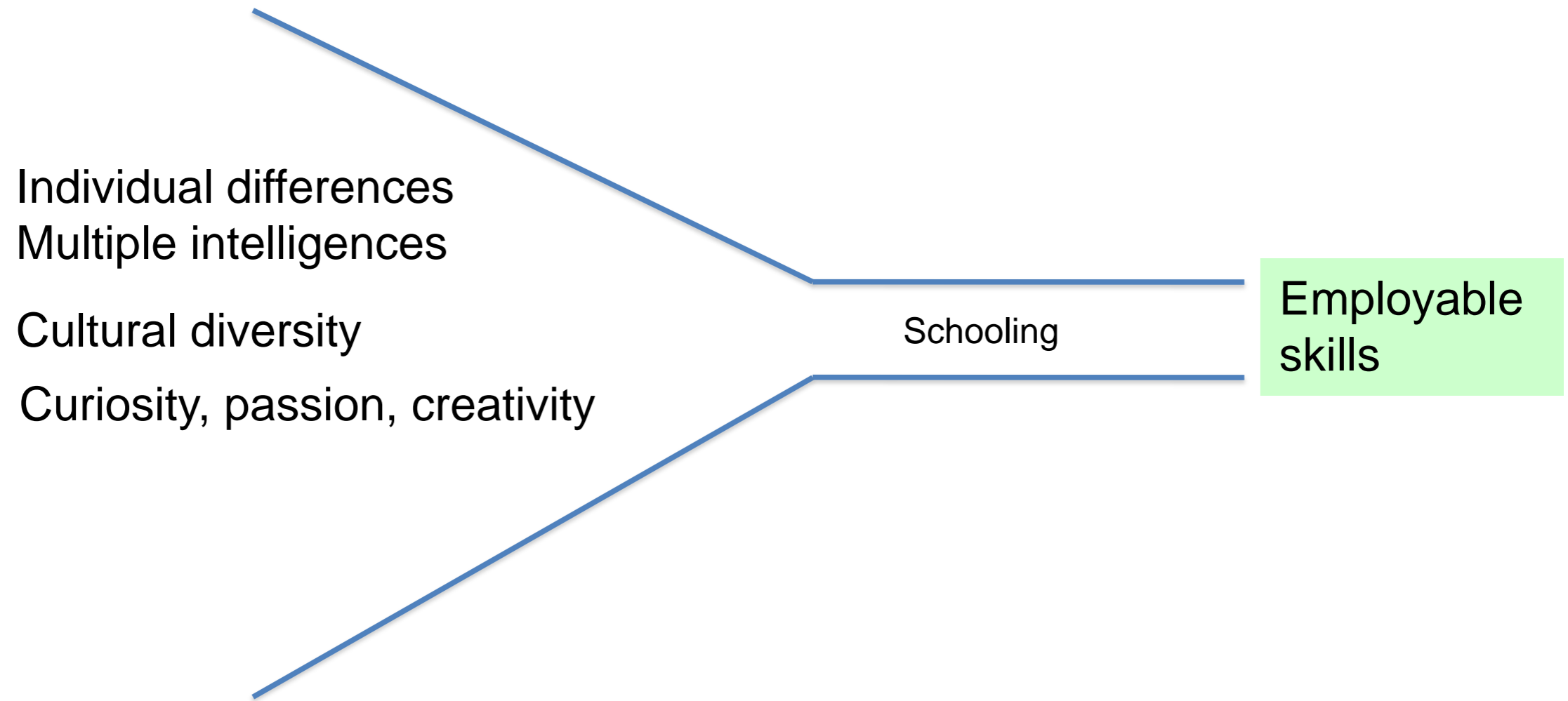
**...what they learn and how they learn are subjects of constant debate. Critics see young people as being “fed” learning because they are seldom left on their own to learn in a way of their choice. They have little direct encounters with nature, for example, and little experience with society either. While they have learned a lot, they may not have learned how to learn.**

**--OECD, 2011** <http://dx.doi.org/10.1787/9789264096660-en>

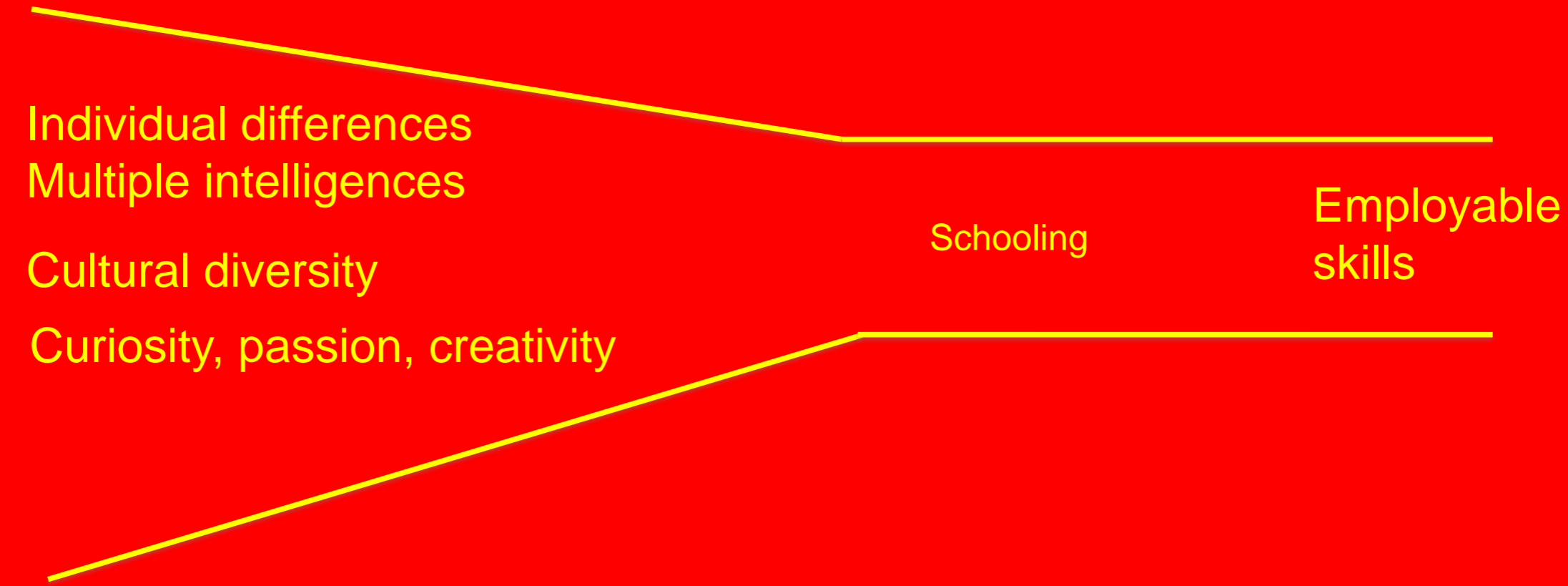
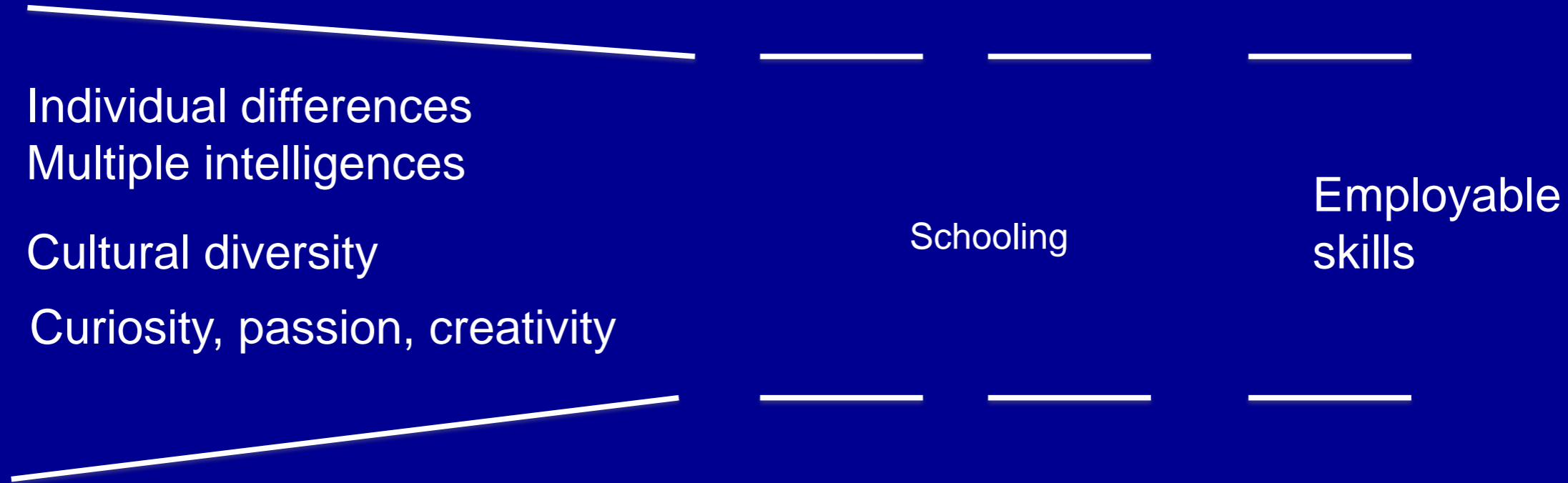


The Difference between a \$10,000 Education  
and a \$10 Education





It is a miracle that curiosity survives formal education.  
---Albert Einstein

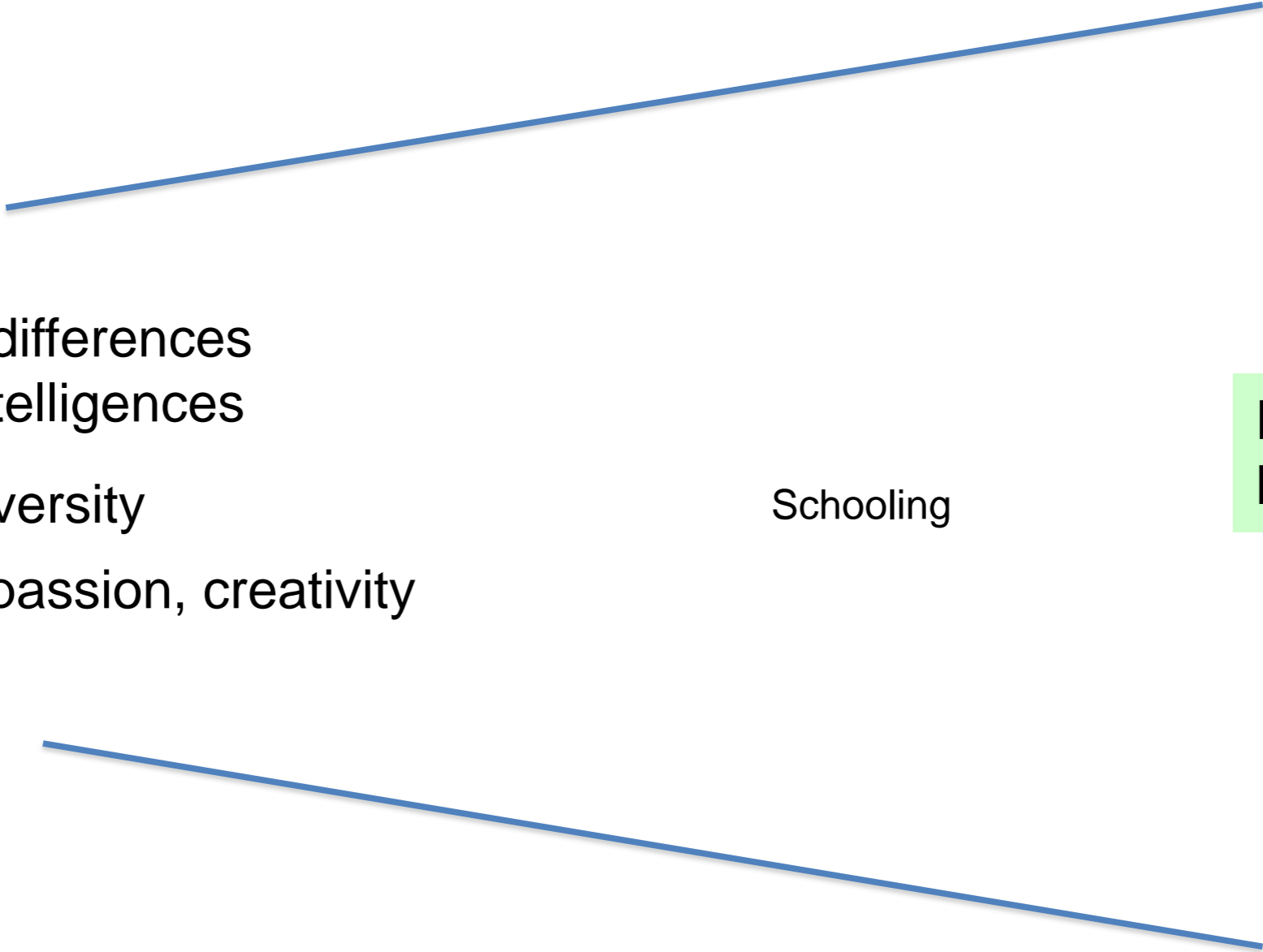


# New Paradigm

Individual differences  
Multiple intelligences  
Cultural diversity  
Curiosity, passion, creativity

Schooling

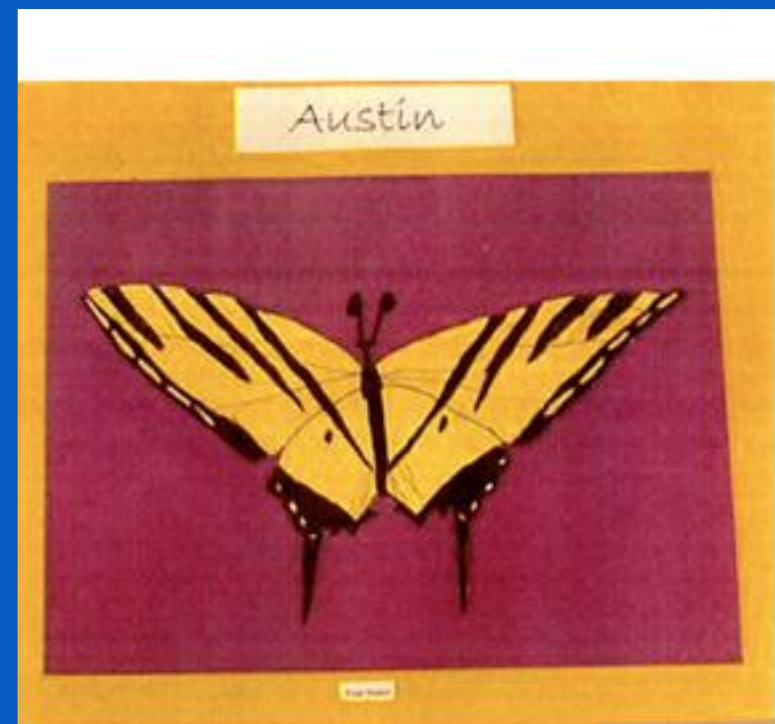
Enhanced  
Human Talents



If Lady Gaga can be useful...

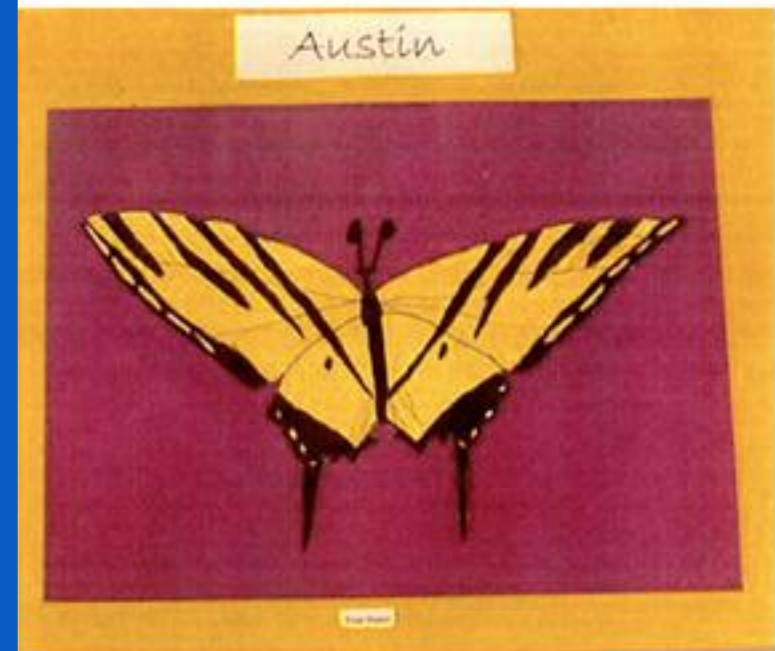
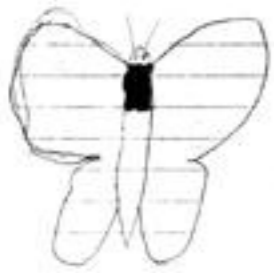
Personalized and strength-based  
educational experiences:  
**Summerhill School**

**Austin's Butterfly...**

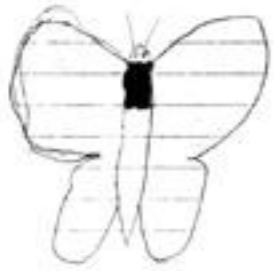




Austin ♀

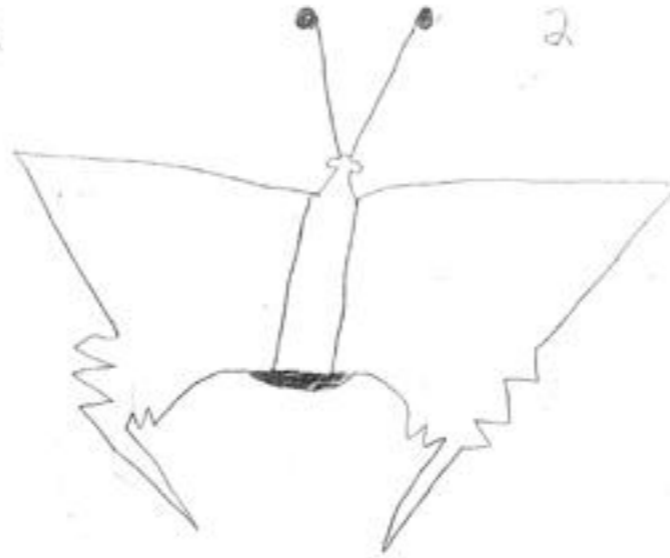


Austin 9-3-02

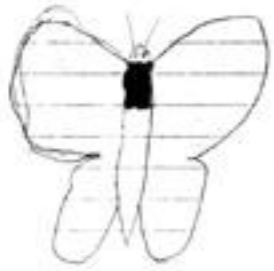


19-02

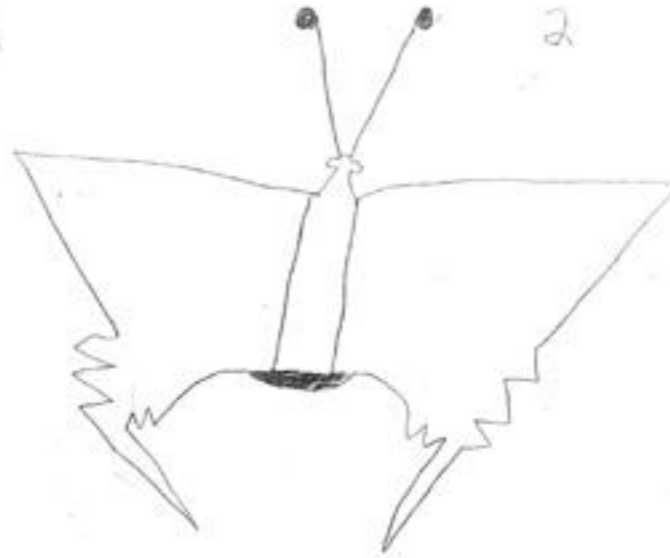
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Austin 9-3-02

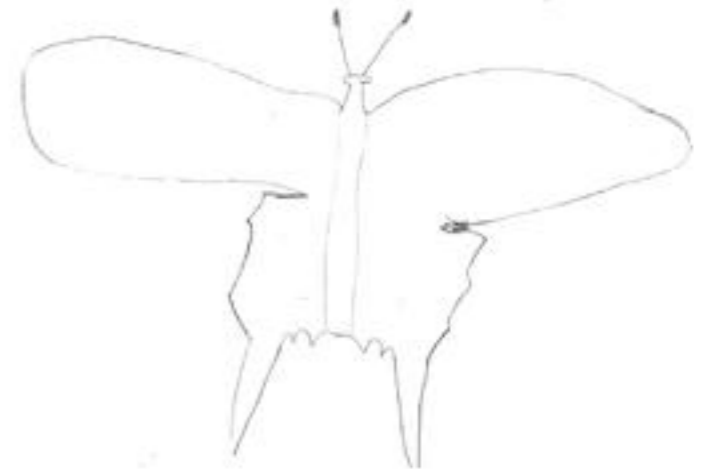


19-02



2

1-10-02

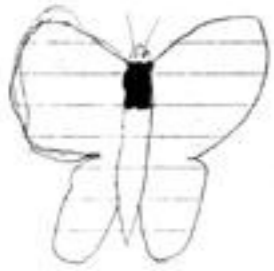


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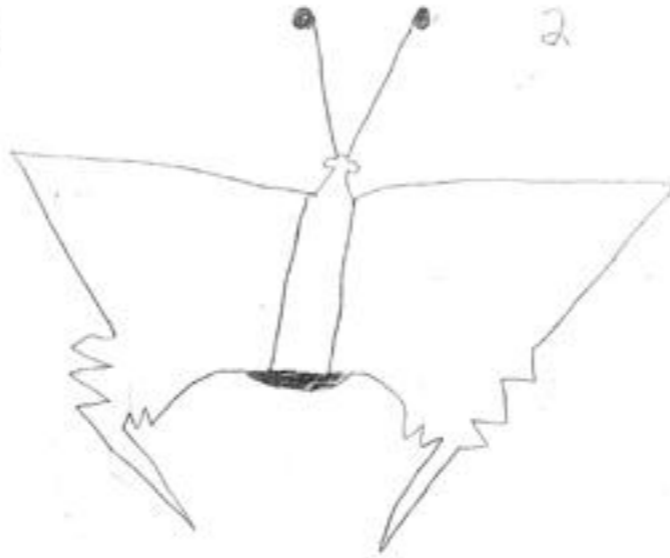
6



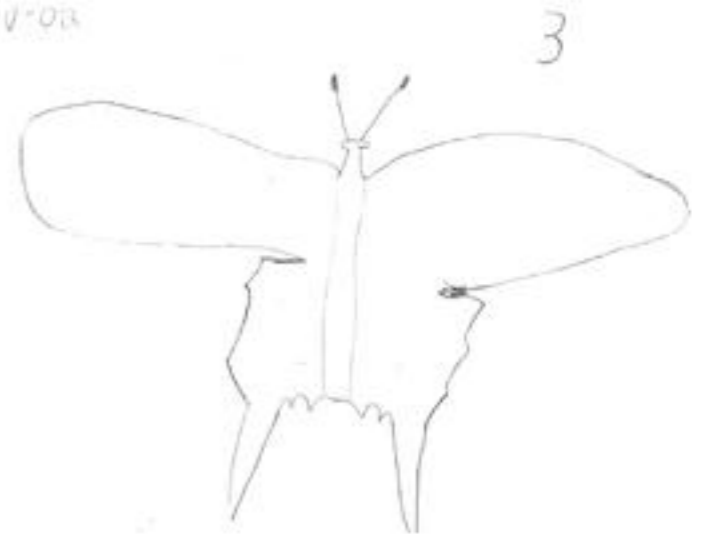
Austin 9-3-02



19-02

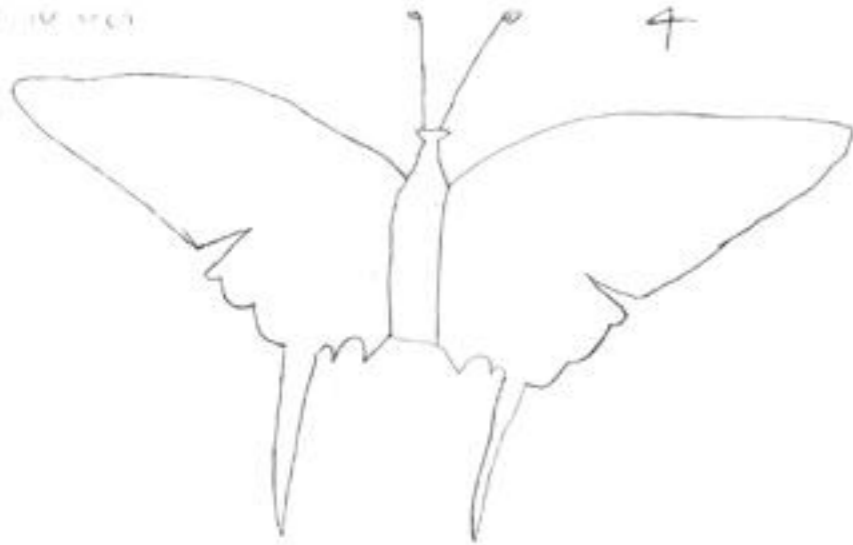


1-10-02

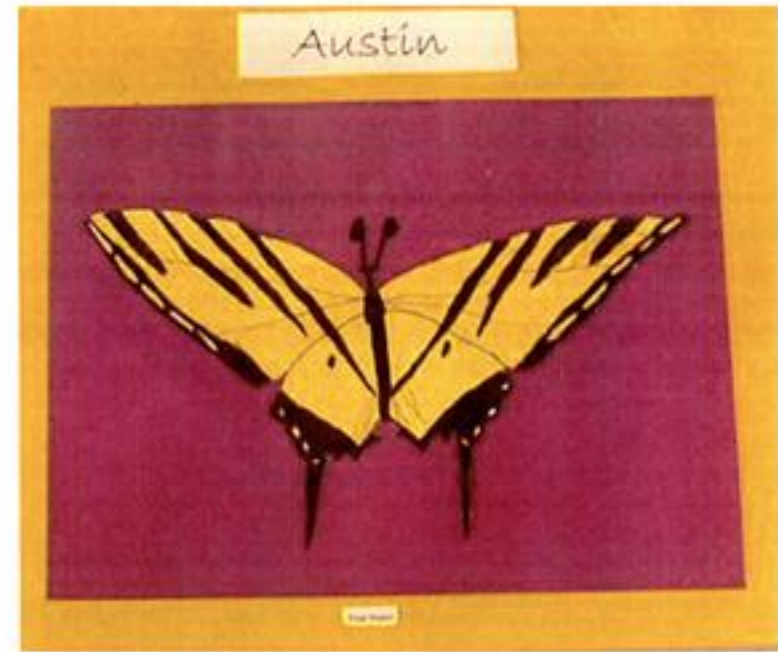
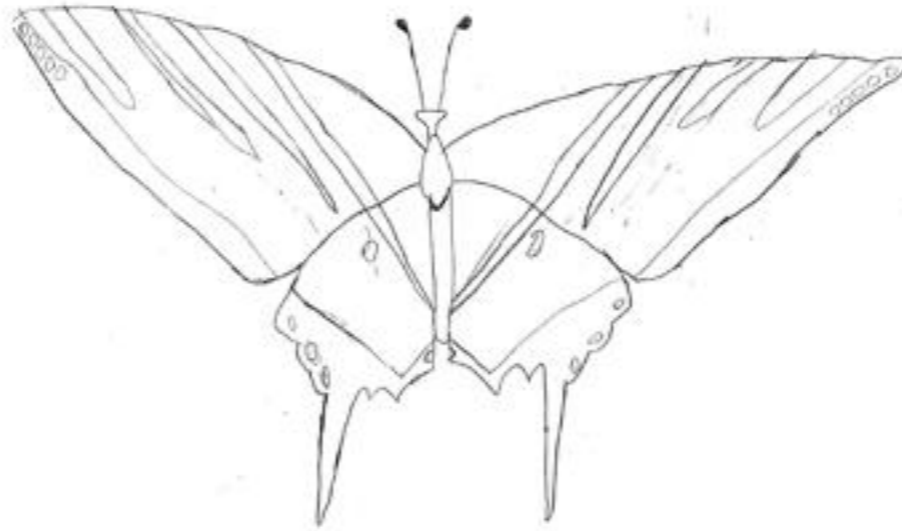


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1-10-02



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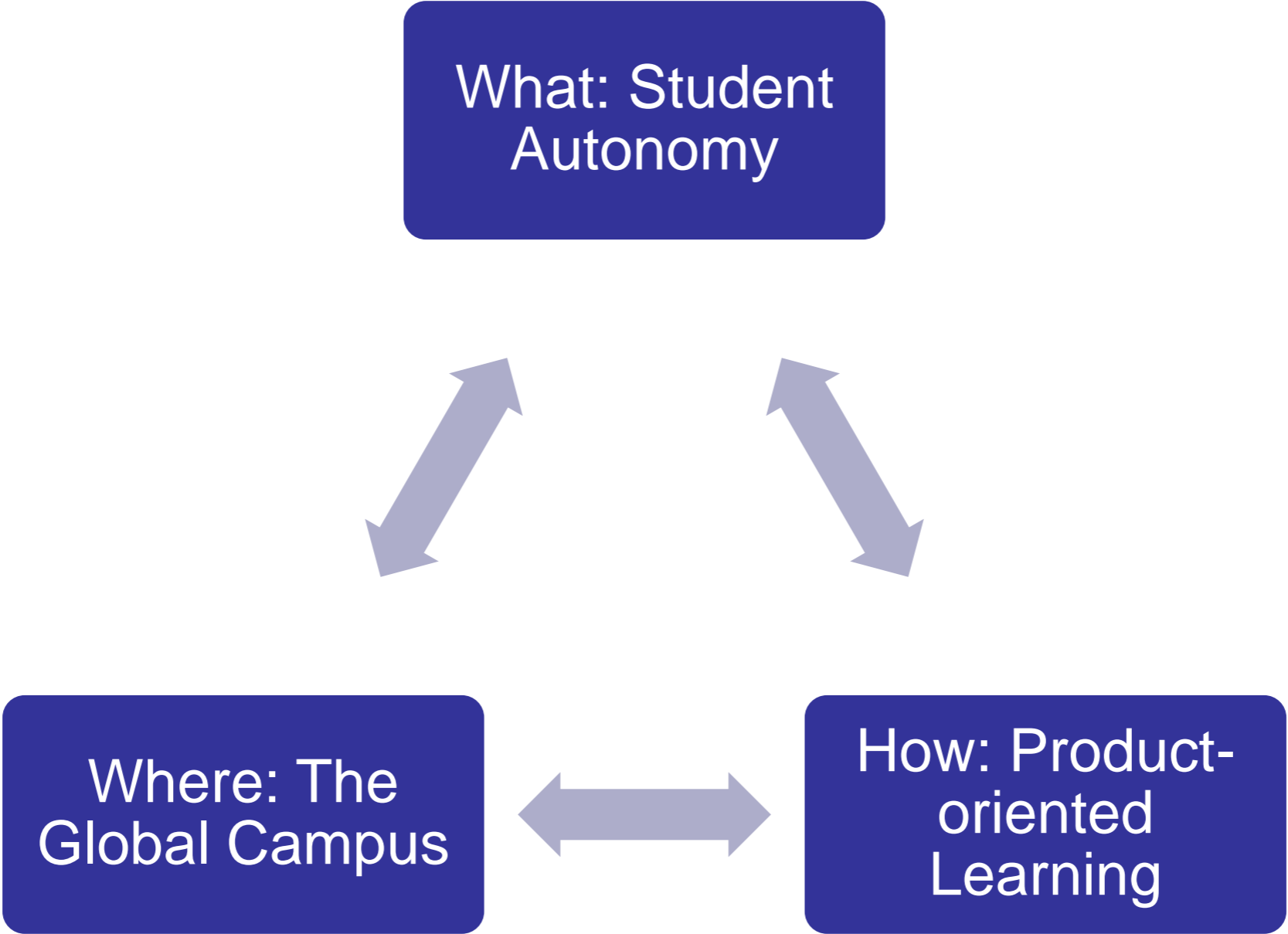


Product-oriented Learning:  
Multiple revisions, sustained and  
disciplined process, peer reviews  
**High Tech High**

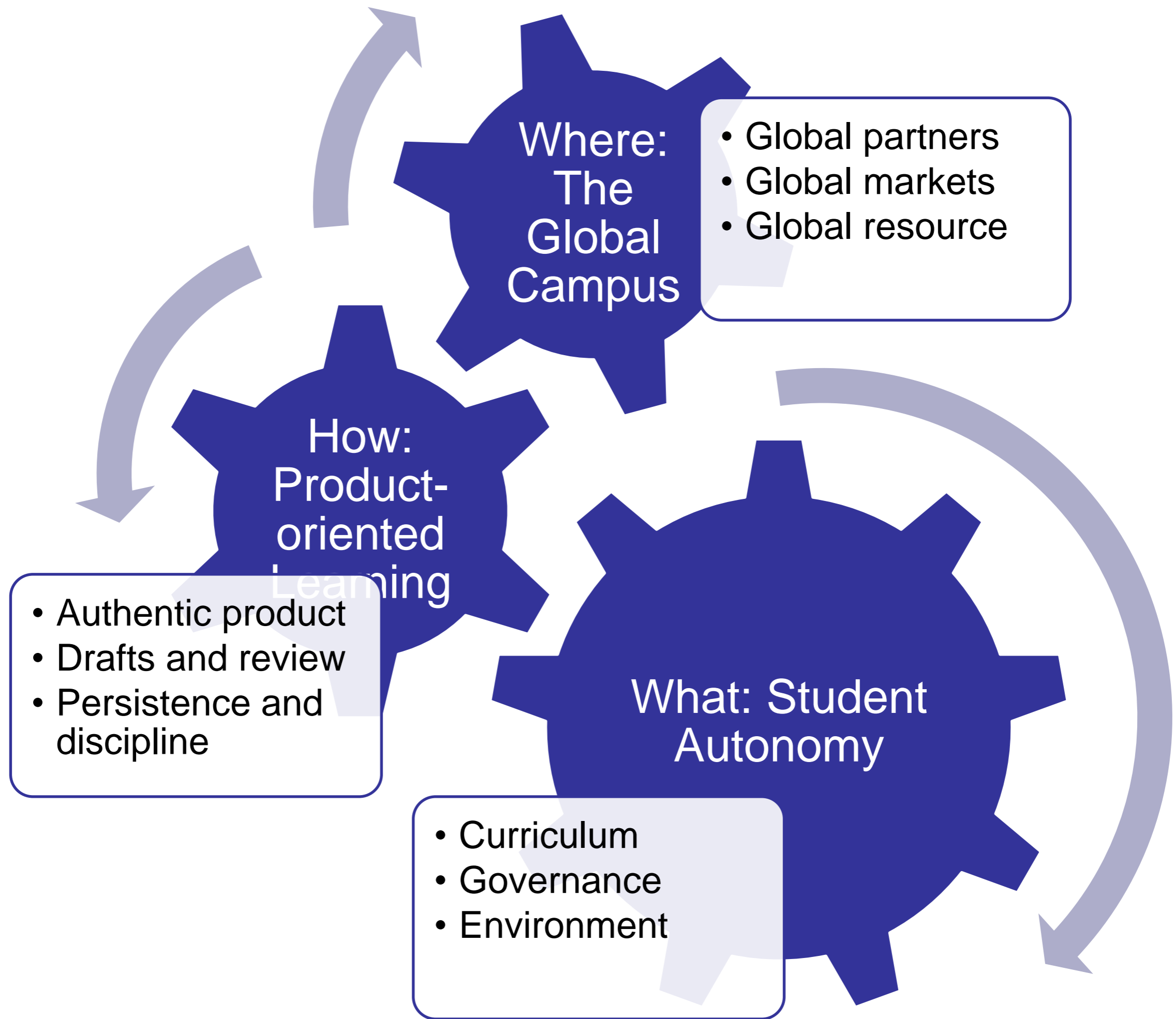
# The Chicken Project

The Globalized Campus: Partners,  
Customers, and Investors:  
**Oxford and Cherwell School**

# Entrepreneurship-oriented Education







Actions we could take:

Fixing the ship or building a new ship

# Some experiments

OBA

<http://globaleducation.uoregon.edu>

<http://zhaolearning.com>