Wealth, Innovation, Design, & Entrepreneurship

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The WIDE Agenda

all individuals in society become wealthier

economic growth of the 0->1 type

innovation & good design

entrepreneurship
On Wealth

Wealth

Not Wealth
On Wealth

Wealth

Not Wealth
On Wealth

Wealth

Not Wealth
Fundamentally, there are (at least) two types of economic growth:

1. giving people something they don’t already have, and

2. giving people more of something they *do* already have

**My claim:** 0->1 is significantly more transformative than 1->2
Economics of 0, 1, 2

0 → 1 Food, housing, communications, transportation, medical care, etc.

1 → 2 Food, housing, communications, transportation, medical care, etc.
Economics of 0, 1, 2

Economics of BETTER:  
Transformative  
Innovation-driven  
ALL in society benefit  
Disobeys laws of conservation

Economics of MORE:  
NOT transformative  
Optimization (cost)-driven  
Optimizers benefit, mostly  
Will not scale indefinitely
“Innovation and trade: the ultimate engines of growth.”
—The Economist, Oct 3, 2009

“We have to choose to do what past generations have done: shape a brighter future through hard work and innovation.”
—Barack Obama, Sep 22, 2009
(ASEE’s “Obama Touts Innovation Agenda At New York Community College”)

“In the new knowledge economy, innovation and knowledge are the most important factors driving economic growth.”

“Innovation is the heart of economic recovery & future prosperity.”
—Roll Call, Nov 20, 2008
I Would Add

• Everyone in the US wants to make **money**, not **stuff**
  *(manufacturing for most of our stuff happens elsewhere)*

• Can really only innovate at the **stuff** level (making new stuff, better stuff)
  *(what IS innovation at the money level, anyway?)*

• Re: **stuff** — our lack of a US manufacturing base means several things:
  ◦ We are encouraging (and teaching) the rest of the world to innovate
  ◦ We’re not innovating any more **as a society** — just scattered outliers
  ◦ “American Spirit” circa 1900 ≠ “American Spirit” circa 2000
  ◦ Our economic growth (wealth, std. of living, etc.) is falling behind others
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What is Design? What is Innovation?

• Can’t define it, but you know it when you see it … 😊

• Close interaction with burnout phenomenon in start-ups

• An inability to eat, think, sleep, care for one’s self, etc. while technical problem remains

• Much “innovation” is just good design (… interesting)

• Requires staring at one problem for extended period (much like Ph.D. in that regard)

Image search for “burnout”
Let’s think more on that last point …

**Innovation and design:** Requires staring at one problem for extended period

**Academia:** Attention flits from topic to topic in a scheduled, often frenetic pace.

Semester concept is both arbitrary and contrived/artificial — false sense of progress

*(innovation recognizes no schedule)*

**We’re training them** to be poor designers.
But, wait, there’s more …

Students calculate the effort needed to get the desired (or lowest acceptable) grade. They do the minimum work required.

**We** (unconsciously) **train them** to do this.

*(in design, anything less than full attention = failure)*

Again, **we’re training them** to be poor designers.
Put Simply

Design & Innovation — what it demands of you:

• Focus: 100%
• Time: an **extended** period

The Academic Environment — what it demands of you:

• Focus << 100% (on any given topic)
• Time ≤ 1 semester (typically is ≤ 1 week)

Conclusion: *Education, while beneficial at the individual level, is counter-productive at the societal level?*
It Has Been Borne Out in Reality

- **Innovation and design requires staring at one problem for extended period**

- **Contrast that with academia (high school & college):**
  - Attention flits from topic to topic in a scheduled, often frenetic pace
  - There is neither time nor incentive to spend more than a small fraction of focus on any given topic

Is it any wonder that SO MANY successful entrepreneurs/innovators dropped out of school?

Larry Ellison  Bill Gates  Stephen Spielberg

Richard Branson  Michael Dell  Steve Jobs
The **WIDE** Agenda

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entrepreneurship
(the original “American Spirit”)(NOT education)
The **WIDE** Agenda — *Your Part*

- all individuals in society become wealthier
- economic growth of the 0->1 type
- innovation & good design
- entrepreneurship
Important development in last decade:

Manufacturing as a Service
The Basic Idea

Design Blueprint

You

Factory

Manufactured Device
The Basic Idea

Design Blueprints → Factories → Manufactured Device → Assembly

You
Some (other) Blueprints

Pickup cavities are just deep enough to hold pickups. Pickups are screwed tightly into the neck wood. Their heights are not adjustable (thus, there are no adjustment screws on the pickup surrounds).
## Pros & Cons

<table>
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<tr>
<th>Pros</th>
<th>Cons</th>
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<tbody>
<tr>
<td>Can’t Possibly compete with big companies</td>
<td>Idea already proven in marketplace (shareware, boutique electronics)</td>
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<tr>
<td>Might fail</td>
<td>Win/win situation (even company failure is good résumé material)</td>
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<tr>
<td>Can’t afford it</td>
<td>Low risk/reward ratio</td>
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<tr>
<td>Window of opportunity?</td>
<td>Start soon</td>
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**Bottom line:** Do it for yourself, your country, the economy, whatever … just DO it.
Questions?
(thank you for your kind indulgence)

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... or just google “bruce jacob”
BACKUP SLIDES
One answer to the question
How Did We Become a Country of Consumers?

- Trade apprenticeship
- Socratic method
- Mass manufacturing
- Classroom teaching

- Deep understanding
- Continuity of ideas
- Innovation & good design principles (?)
- Suppression of critical thinking
- ‘Disconnect’ between industry & academia
- Overeducation, contempt for trades
- End of innovation?
Can We Teach Innovation & Design?

Necessary Elements:

• Look at one problem for extended period (years?)

• Personal investment in outcome (reward, pride, etc.)

• Time commitment need not be large on per-week basis

• Need to see real examples of both success and failure

• Must be guided by innovators (not academicians, not MBAs)

• No fear of failure — either way (grades or loss of job)