

The Pursuit of Collective Intelligence, and Happiness, in Science

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First Observation of a Open Air Bivouac
March 19, 2016 (Radhika's 45th birthday)



With Melinda Malley (PhD student, ArmyAnt inspired robots)
and Mike Rubenstein (Alum, Prof@Northwestern, Kilobots)

~~The Myth of Destiny~~

The Story of Re-Invention

*Science is a journey, where there are no straight paths.
As Scientists, we are constantly discovering new things
and Reinventing Ourselves.*

A Hypothesis

- Science is a form of *Collective Intelligence*
- Science has a set of rules that we call *Culture*
 - Good rules enhance collective intelligence and thus Science, while bad rules create dysfunction.
- *Culture can be changed by changing the Rules*

The Myth of the Isolated Genius

Human Collective Intelligence

What are the local rules that lead human groups to excel?

Question: Does “Group. I.Q.” exist?

- Experiment
 - Ad-hoc groups (190 teams, 2-5 people)
 - Variety of tasks (McGrath Circumplex)
 - Measured performance and features
 - Factor Analysis
- Results: Yes!
 - *There is a “c” factor* that strongly predicts group performance.
 - *And it is made of interesting things...*

Top predictors are!

- Average social sensitivity of members
- The equality in conversation turn-taking
- The proportion of women in the group

Not good predictors!

*Maximum individual IQ
& Average individual IQ*

~~The Myth of the Isolated Genius~~

The Story of Collective Genius

In Science, there are special environments that enable every member to achieve their highest potential.

We (our lab) aim to create such an environment by using three tools: Empathy, Equality, and Diversity.



Our Lab
Summer 2017

The Myth of Highly-Competitive

~~The Myth of Highly-Competitive~~

The Story of Highly-Generous

Science is a world-wide collaboration. And the best science happens when we generously open the door to enable participation for all. And it must be a collaboration, because talent knows no boundaries.

*Generosity is a bedrock of Science
and we aim to make it an everyday value in our labs.*

The Myth of Gender-in-STEM



**Do women have to be naked to
get into the Met. Museum?**

**Less than 5% of the artists in the Modern
Art Sections are women, but 85%
of the nudes are female.**

GUERRILLA GIRLS Box 1036-Cooper Sq. NYC NY 10026
CONSCIENCE OF THE ART WORLD

~~The Myth of Gender-in-STEM~~

The Story of We-should-all-be-Feminists*

Women are not absent from STEM.

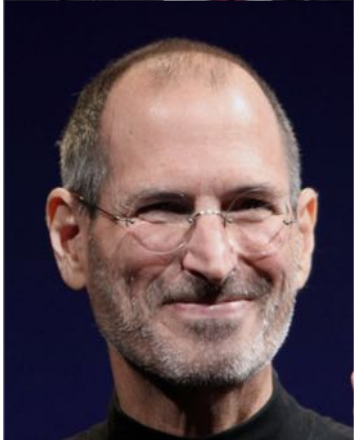
Women are absent from Careers & Power.

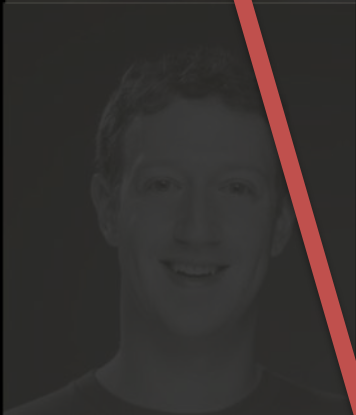
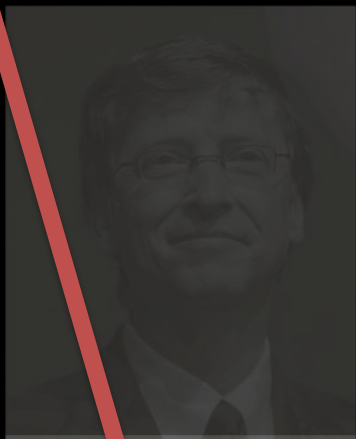
We don't have a Gender-in-STEM problem.

We have a Patriarchy problem.

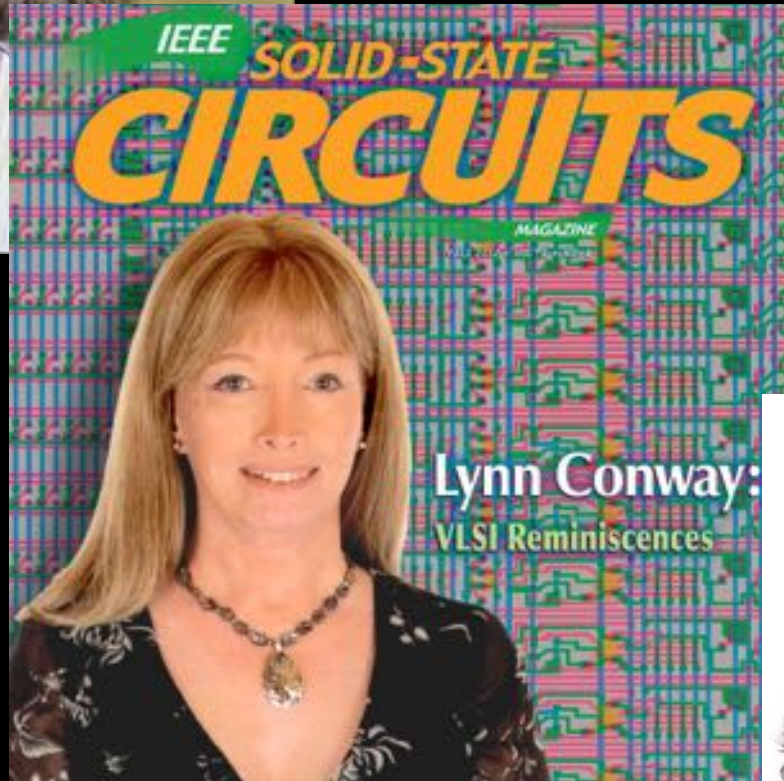
*Chimamanda Ngozi Adichie, TED 2012

The Myth of Success as an Image





Jane Goodall | Lynn Conway | Oprah Winfrey
Scientist | Engineer | Entrepreneur



~~The Myth of Success as an Image~~

The Story of Success Re-Imagined

We aim to Reimagine and Redefine Success by choosing new images.

By living and sharing our own images of success, publicly, we give permission to others to imagine. And we tap into that collective power that has caused cultural change throughout history.

