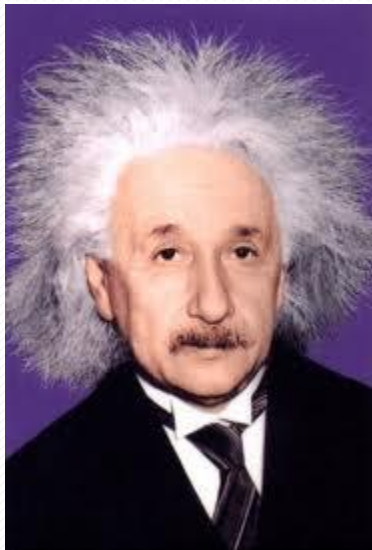# EXCELLENCE

Lessons from
Outliers (Malcolm Gladwell)
Imagine (Jonah Lehrer)

IQ Fallacy

How many times have you heard the following?

Some people are just plain born smart!!!

Oh, I'm not a math person.

Problem #1: IT'S NOT TRUE!!!

Problem #2: If you buy into this fallacious theory, you may not work hard, believing it doesn't matter.

Lewis Terman – IQ Study

- Longitudinal study of 1470 youngsters with exceptional IQs (above 140)

- Many became "successful."

- Quite a few did not.

- None were hugely successful.

- Within the group, there was no correlation between IQ and level of success.

The Truth about IQ

- Studies of successful people found that while they have an above average IQ, exceptional IQ didn't help.

So what predicts success?

HARD WORK!!!

- Jerry Rice was known for his strenuous off-season workouts.

- Bill Gates logged thousands of hours of programming time as a teenager.

- Before the Beatles became famous in the United States, they had about ten years of practice playing smaller venues all over Europe almost daily.

What predicts success in math?

- Trends in International Mathematics and Science Study (TIMSS)
- Conducted every four years
- Contains an extensive background questionnaire
- Number of background questions answered correlated with mathematical proficiency.
- **Those who did well at the math were the ones willing to answer boring survey questions!!!**

Knowledge is Power Program (KIPP)

Key finding

Both Poor and Rich children have similar learning gains during the school year.

KIPP's Solution: Provide <u>MORE</u> School for poor children.

KIPP - Hours

- Monday – Friday
  - 7:30 am – 5:00 pm
  - Extra Curricular Activities
  - Three Weeks in July

- Saturdays
  - 8:30 am – 1:30 pm (on selected Saturdays)

End Result: 60% more school time than a regular public school

KIPP Analysis – by Mathematica

- KIPP doesn't attract more able students.
- KIPP schools typically have a statistically significant impact on student achievement.
- Academic gains at many KIPP schools are large enough to substantially reduce race and income-based achievement gaps.
- Most KIPP schools do not have higher levels of attrition than nearby district schools

Role of Creativity

- In the 1980s, Proctor and Gamble needed a new cleaning product – they tasked some of the best scientists in the world to replace the mop.

- While it was agreed that the mop had many problems, no new solutions were created.

- P&G finally outsourced the task to Continuum, a design firm.

Combination of Hard Work and a New Perspective

- Continuum designers watched lots of video of people cleaning their homes.
- All agreed that rinsing the mop after cleaning was bad.
- In one video, a woman used a paper towel to "sweep up" leftover crumbs and threw it away.
- This video eventually led to the idea of the Swiffer!!!
- Lots of effort was required to make it a reality.
- "Genius is one percent inspiration, ninety-nine percent perspiration." – Thomas Edison

InnoCentive

- Websites where companies pose their vexing problems for a prize.

- Most of the problems are solved by "outsiders."

- Outsiders are typically in a tangentially related field.

- For examples, chemists help solve molecular biology problems.

Markers of Double Stranded DNA Breaks in Humans

AWARD: **$10,000 USD** | DEADLINE: **6/29/12** | ACTIVE SOLVERS: 17 | POSTED: 5/29/12

Proposals of novel and detectable physiological markers of DNA double-strand breaks (dsb) in humans are required. The markers should be specific for detection of dsb or detection of DNA repair proteins associated with the repair of dsb. More details are included in the Challenge Description.

Q Factor

MGM HD presents
West Side Story
film with live orchestra

Defines closeness between project collaborators

The Q Factor for nearly all very successful Broadway Musicals is **intermediate.**

Pixar Studios has a unique building set-up

Collaboration – Urban Friction

Dense cities produce more patents and products, per capita.

If you live in a city twice the size of the one you currently live in, you're likely to be 15% more productive.

Urban settings increase the chance of random run-ins.

Collaboration – lessons from Shakespeare and San Jose

In today's environment, Shakespeare would likely be sued.

Elizabethan England was very lax about enforcing their copyright rules.

Silicon Valley companies encourage collaboration and have relatively weak non-compete clauses.

Take Home Lessons

1. Success comes through practice and not innate skill.
2. Work Hard.
3. Don't Give Up Easily – We Learn Through Failure.
4. To maximize your hard work, collaborate with others.
5. Put yourself in situations where you meet lots of people.
6. Take ideas from other disciplines and see if they can be "transformed" to solve a problem you have.
7. Collaborate within the confines of a given situation.

Credits

- Nearly all of the content in this presentation comes from case studies in <u>Outliers</u> by Malcolm Gladwell and <u>Imagine</u> by Jonah Lehrer.

- The images were found using Google Image search.

- Some of the KIPP information was found directly off its website: http://www.kipp.org and off the Wikipedia summary of KIPP.