What I Wish I Knew When I Was in Grad School



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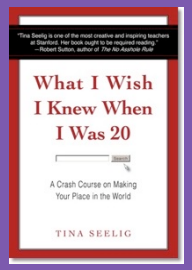
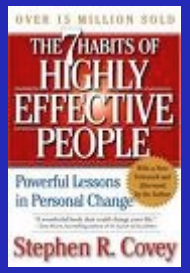
Graduate Skills Seminar

- Today: What I Wish I Knew …
- Later:
  - How to do research?
  - How to give quality presentations?
  - How to write a research paper?
  - Internships and funding
  - Research ethics
  - Research in academia vs. industry
  - Graduate student panel

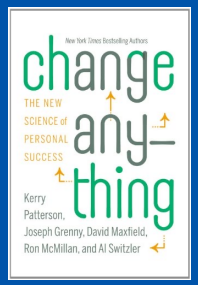
Ideas from …



- What I Wish I Knew When I Was 20
- Tina Seelig



- The 7 Habits of Highly Effective People
- Stephen R. Covey



- Change Anything: The New Science of Personal Success
- K. Patterson, …

Graduate School

- Not like undergrad.
  - You can't succeed just by doing what you are told.
  - *Your* road to success not predefined.
    - Yes! You have your own road!

- **You are responsible for your own success!**

- What about your "advisor"?
  - Think of her/him as a mentor.

Be Proactive

- Figure out what you need to do.
  - And, do it!
- You need to proactively …
  - Do research
    - Find problems, find solutions, etc. (make systems, experiment, …)
  - Communicate
    - Write papers, give talks, network, …
  - Manage your relationships
    - Colleagues, advisor, …
- Stretch the boundaries of your current skills
  - Take risks every now and then.

Stay Motivated



- Look for motivation inside.
  - Don’t wait to be pushed by others.
  - Don’t wait for someone else’s permission to do what you want.

- Proactively work on keeping yourself motivated.
  - Spend time reading books that inspire you.
  - Talk to people who inspire you.
  - …

Remember Your Goals

- Envision your graduation.
  - What is next? Are you excited about it?
  - Make sure you are!

- Identify what you want, and why.
  - Gives you motivation.
  - Clarifies values.
  - Gives you direction.

Prioritize

- You have many many options.
  - Which is very good.
- You need to choose what to focus on.
  - Many distractions along the way.
- Making decisions can be difficult.
- Choose! Don’t let the external forces choose for you.
  - Choosing proactively can be extremely empowering.
  - And you get better at it over time.

Problems



- I see … problems in your future!
  - Research ups and downs
  - Conflicts (with your friends, advisor, …)
  - Procrastination
  - …
- Embrace problems; don't avoid them.
  - Opportunities lie within problems.
- *"The bigger the problem, the bigger the opportunity. Nobody will pay you to solve a non-problem."*
  - Vinod Khosla, Co-founder of Sun Microsystems

Creativity: Wealth of Possibility

- **First requirement**: the attitude that the problem can be solved (proactivity).
  - No complaining here.
- The more problems you solve, the better you get.
- Unfortunately, there is no "algorithm" for solving problems.

- **Creativity is the key.**

- Example: What would you do to earn the most amount of money if you had
  - Two hours; and
  - Five dollars?
- How about buying a lottery ticket?! ☺

Solutions from Stanford Students

- Restaurant reservation
  - Saturday night, long lines at popular restaurants
  - Make reservations beforehand, and sell
- Measure bicycle tire pressure
  - For *free*; if needed add air for *one dollar*
  - Halfway: ask for donation instead of specific amounts
- And the winner is …
  - Sell in class presentation time to companies who wanted to recruit students
  - Made $650!
- None of them needed the $5!

Failures

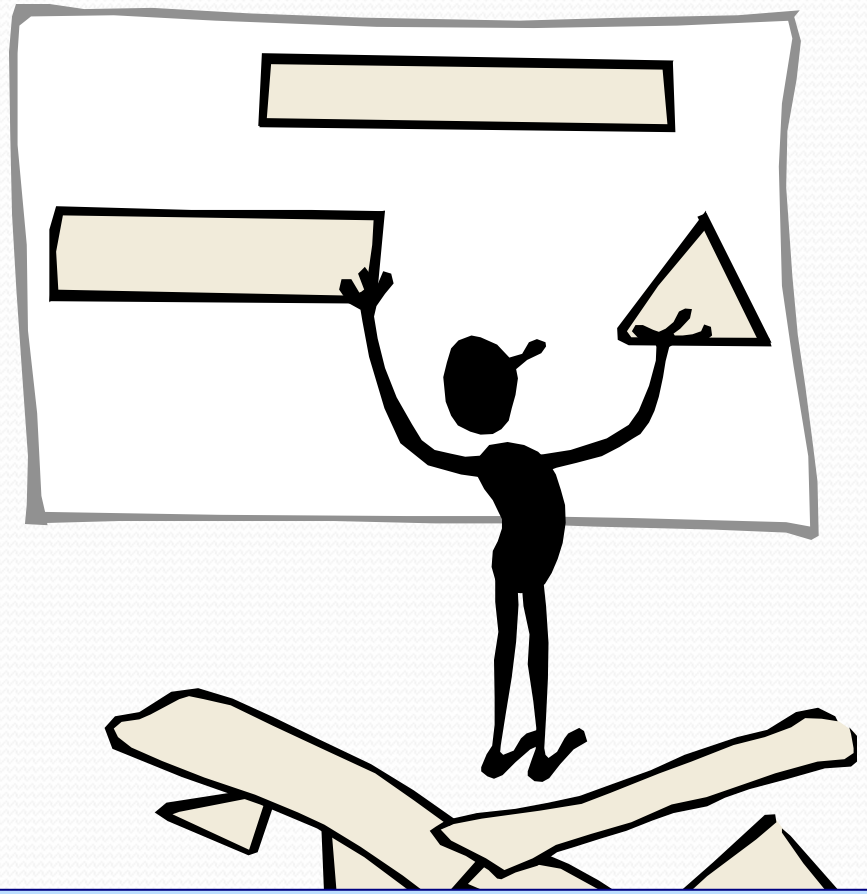
- Acknowledge failure as a natural part of the process.
  - It's inevitable; and
  - Necessary.
- Success comes from trying different things.
  - Pushing the limits
- For your thesis pick a topic which has 20% success chance. – Jim Plummer, Dean of Stanford's School of Engineering
- Think of failures as learning opportunities
  - If you aren't failing, you aren't taking enough risks.
  - You fail only if you don't learn from it.
- You don't have to try everything yourself though.
  - Learn from others' experience

Changing Direction

- Change is OK
  - Your methodology, thesis topic, your area, …
- In fact, adjusting to conditions is essential for success.
  - You can't predict everything beforehand.
  - Need constant reassessment and adjustment.
- Most of the time small direction changes are enough to put you back on the right track.
- Sometimes major decisions are needed
  - Be honest with yourself; listen to your gut.
  - Consider alternatives.
  - Make the best decision you can, and regardless of the outcome feel good about it.

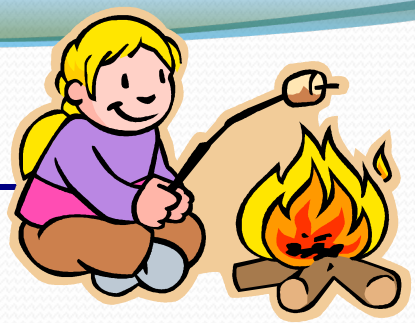
Change?

- In the past, people inherited their wealth and success.
  - No need for change.
- Today, people succeed on their own.
  - Change is essential.
- **Question 1**: Can we change?
- **Question 2**: If so, how?



"The biggest ally of super-achievers is the inertia of others." – David Rathkopf

The Willpower Trap



- The marshmallow experiment
  - Kids who can resist eating a marshmallow for 15 minutes, do better in *almost every area of life.*
- Willpower defines your success
  - Is this true?
  - No! This is wrong! Tragically wrong!
  - Means no way to improve and change for better.

- Second marshmallow experiment: Simple distraction techniques improve success rate by 50%.
- Lesson: Personal skills are just as important!

The Bankruptcy Experiment



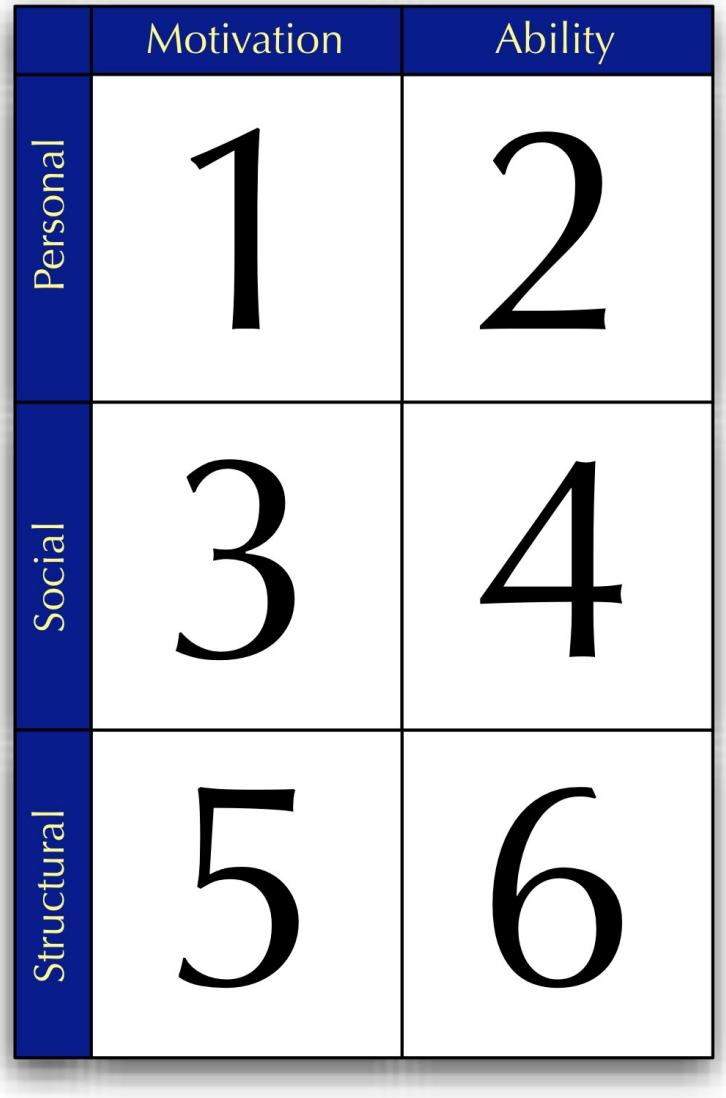
- Our primary problem isn't that we are weak.
  - It's that we are blind to what impacts us; and
  - We are outnumbered.
- **Bankruptcy Experiment:** Influence fifth graders to *spend* or *save* money
  - Each kid to complete 4 simple tasks; earn $10 for each
  - Offered opportunities along the way to spend
  - Asked to think about what they would like to do with the money when they go home
  - All kids seemed motivated to keep the money and resist the temptations

The Bankruptcy Experiment – Cont'd

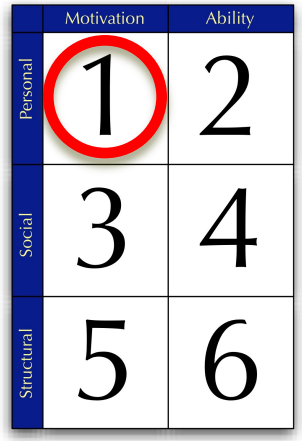
- **Task 1**: rank assorted candies from least to most favorite
- **Task 2**: alphabetize toys
- After each task everybody got a chance to look at the gift store
  - Countertop covered with inexpensive candies and toys
  - With outrageous prices: ten times the regular price
- Outcome?
  - Group 1: less than $13 left; some with no money
  - Group 2: an average of $34.
- Kid's didn't realize why this happened.
  - They blamed themselves. Lack of willpower!

How To Change Anything

- Six sources of influence
  - Personal, social, and structural
  - Motivation, and ability
- Forces that can work against us, work in parallel.
- We need to understand and use the same sources to change.
  - Success rate 10 times higher

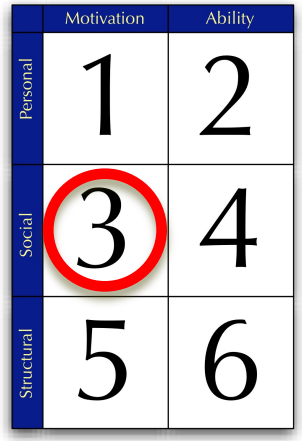


Sources of Influence



- Source 1: Personal Motivation
  - Group 1: asked to taste their top ranking candy
  - Group 2: asked to think about what they wanted to buy
- Lesson: Interrupt your impulses by connecting with your goals during crucial moments
- Source 2: Personal Ability
  - Group 1: -
  - Group 2: taught to keep track of spending
- Lesson: Learn new skills

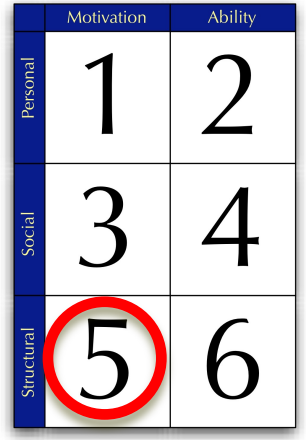
Sources of Influence



- Source 3: Social Motivation
  - Group 1: three big spenders joined the team
  - Group 2: two spenders and one saver joined the team
- Lesson: Turn “accomplices” into friends

- Source 4: Social Ability
  - Group 1: -
  - Group 2: saver reminded others about the high prices
- Lesson: Ask for help and support; get a coach (e.g. your advisor?)

Sources of Influence



- Source 5: Structural Motivation
  - Group 1: received credit
  - Group 2: paid in cash
- Lesson: Directly link short-term rewards to your new habit.

- Source 6: Structural Ability
  - Group 1: room surrounded by pictures of candy
  - Group 2: -
- Lesson: Make small changes to your environment; visual cues (e.g. desktop background), …

The End …

- **Question**: When do you know you have done enough work for your thesis?

The End – When You've Done Enough

- Don't be a perfectionist.
  - Your PhD thesis is only one project out of many you will complete in your life.
- Strong sign: when you have published two *good papers*
  - High impact, published in highly reputable conferences or journals
- Of course, this rule depends on your area.
- Talk to your advisor about it. He/she would be able to help.

Thank you!

Any thoughts/suggestion for future topics?