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.
  • ...

Yashar Ganjali - Research Skills Seminar
What I Wish I Knew When I Was in Grad School
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

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<tr>
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<th>Motivation</th>
<th>Ability</th>
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<tr>
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<td>2</td>
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<td>Structural</td>
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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?