

Mentorship Matters

The Case for Graduate and Post-doctoral
Professional and Leadership Development

Reinhart Reithmeier
University of Toronto

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Why GPLD?

- ▣ Ensure that our graduates are fully prepared to take advantage of the diverse career opportunities available to them in today's global marketplace
- ▣ Ensure buy-in from graduate students, faculty, graduate programs and administrators



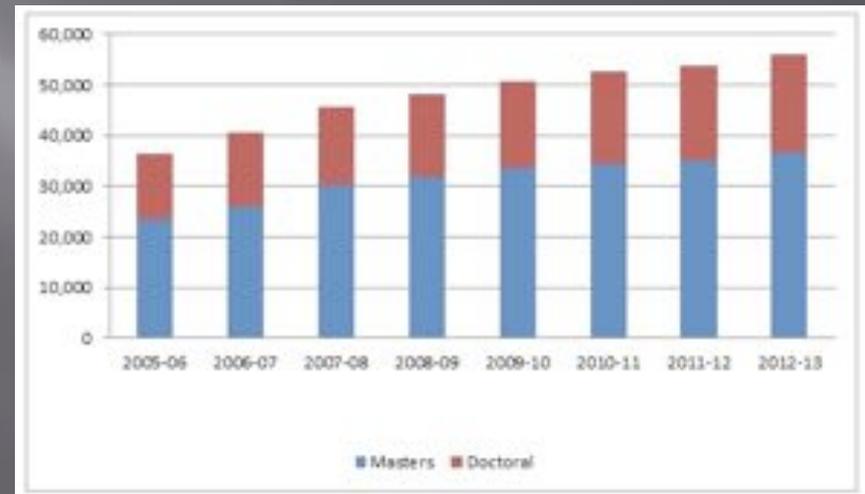
15% of U of T Biochemistry PhDs Become Professors

- ▣ What about the other 85%?
 - They have developed their own unique, diverse and successful career paths
 - Current students, faculty members and administrators are often not aware of these opportunities



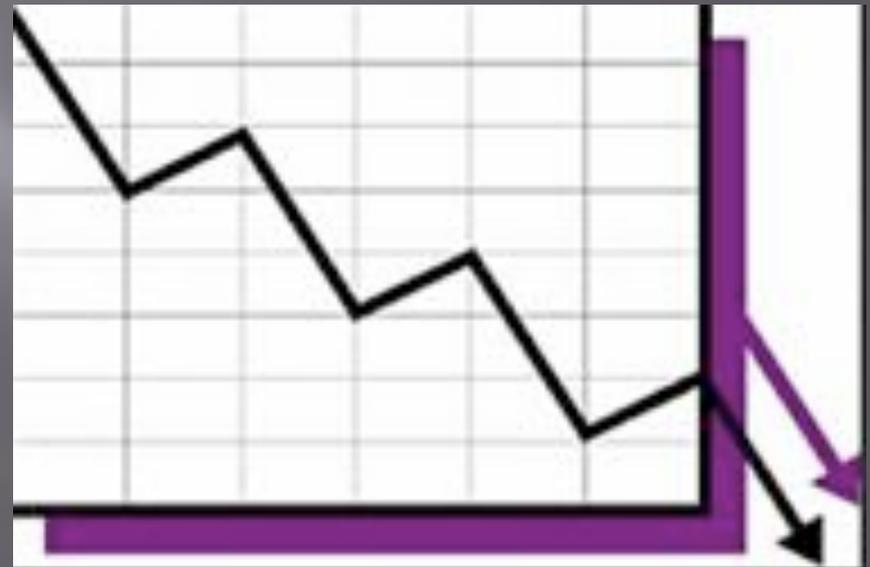
Supply/Demand Demographics

- ▣ Enrolment in graduate programs in Ontario increased from 36,506 to 56,188 from 2005 to 2012
 - Increased undergraduate enrolment
 - Anticipated retirement of senior faculty members
 - Need for highly qualified personnel for global competitive advantage



What Happened to Faculty Positions?

- ❑ Elimination of mandatory retirement
- ❑ Fiscal restraint eliminates positions
- ❑ Move to lecturers, often contract
- ❑ Global market
- ❑ Application pressure 1/200
- ❑ Alternative careers emerge



University Professor

- ▣ 2/3 enter PhD programs to become professors
 - Pursue research and teaching in area of interest and expertise
 - Tenure and security
 - Salary (>\$100,000)
 - Professional
 - Prestige



Professor or Nothing!

- ▣ Apprenticeship model
- ▣ Can't talk openly with supervisor
- ▣ Lack skills to do anything else
- ▣ No experience outside academia
- ▣ Limited network
- ▣ Enter professional program



Nose to the Grindstone

- ▣ Work long hours
- ▣ Produce, produce, produce
- ▣ Paper in top journal
- ▣ Great post-doc
- ▣ Faculty position
- ▣ Need papers to get grants, to get grants to get papers, to get...
- ▣ Ideal setting for academic fraud



Reality Check

- ▣ A small number of PhDs assume faculty positions
- ▣ Non-academic careers are the vast majority
- ▣ Need to re-define success
- ▣ “The best students will always become professors.”



Apprenticeship Model

- ▣ *“The narrow focus of a literal “apprenticeship” to become a professor, combined with little contact with the world outside of academia, leaves little question why many PhD graduates feel at a loss after graduation, especially once they decide to pursue a non-academic path.”*

So You Want to Earn a PhD? The Attraction, Realities, and Outcomes of Pursuing a Doctorate, HEQCO

Why Non-academic Options

- ▣ Job opportunities
- ▣ Practical work (MSc)
- ▣ Research with no teaching
- ▣ \$\$\$/business
- ▣ Lost interest in doing research
- ▣ Supervisor was poor role model



PhD Fundamentals

- ▣ Self-motivation and a strong work ethic dedicated to:
 - Generating significant new knowledge based on independent research using cutting edge methods
 - Understanding in depth their field
 - Developing excellent technical and critical analysis skills
 - Communicating effectively their findings at conferences and in top peer-reviewed journals

Research & Education

- ▣ Research: Careful study and investigation to discover new facts and information
- ▣ Education: systematic training and instruction designed to impart knowledge and develop skills

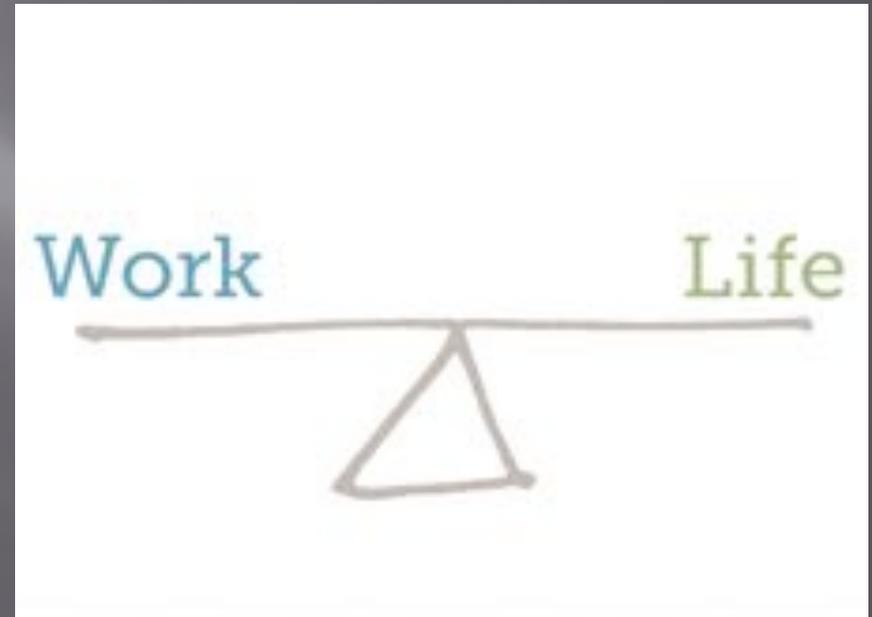
Using PhD Studies Wisely

- Develop a technical skill set
 - Not a technician, problem solving, new approaches
- Develop in depth understanding of literature
 - Critical analysis of papers
- Develop communication skills
 - Talk about project to lay audience
- Develop collaborations
 - Team building, communication
- Develop their own ideas
 - Teaches independence, leadership, mentoring, imagination



Work-Life Balance

- ▣ Need to integrate
- ▣ An understanding and supportive partner is essential
- ▣ Have something as important as research in your life
- ▣ Use your time wisely (quality not quantity)
- ▣ Flexibility/Time management



Professional Skills

- ▣ Research management
- ▣ Leadership, interpersonal and team building
- ▣ Creative and critical thinking
- ▣ Communication (written, oral, presentation)
- ▣ Teaching competency and knowledge translation
- ▣ Integrity and ethical conduct
- ▣ Social responsibility



A Graduate Course in Professional Development

- ▣ Small interactive class
- ▣ Develop skills, especially communication
- ▣ Assignments
- ▣ Engage alumni
- ▣ Build network
- ▣ Leadership
- ▣ Career paths



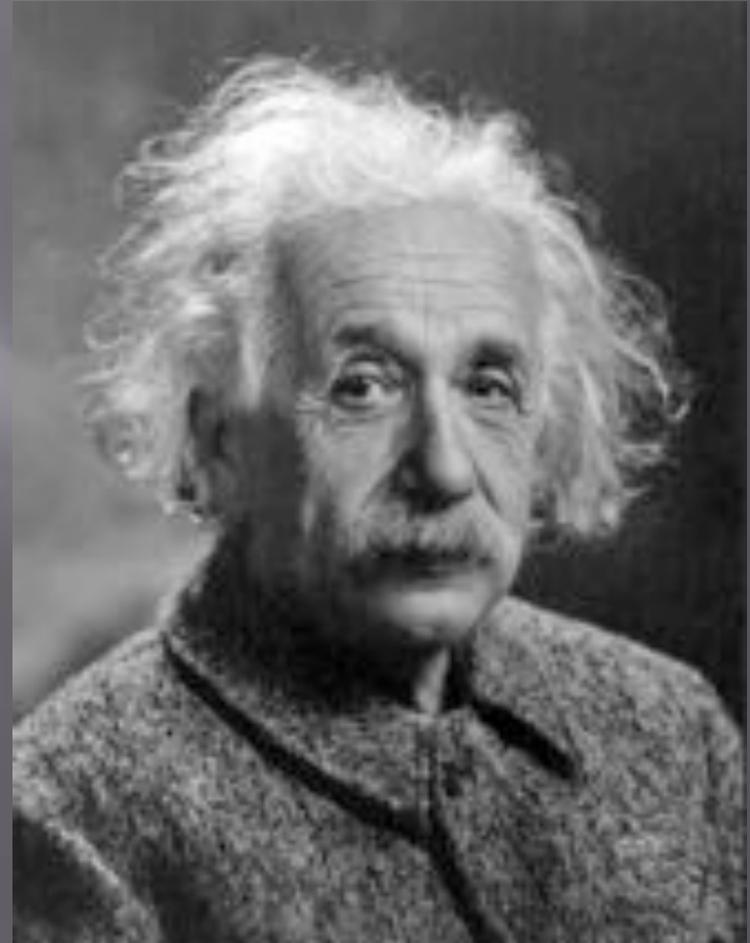
Communicating Your Science

- ▣ Students are trained to present in a strict formal manner:
 - Title
 - Introduction
 - Results
 - Conclusions
 - Questions



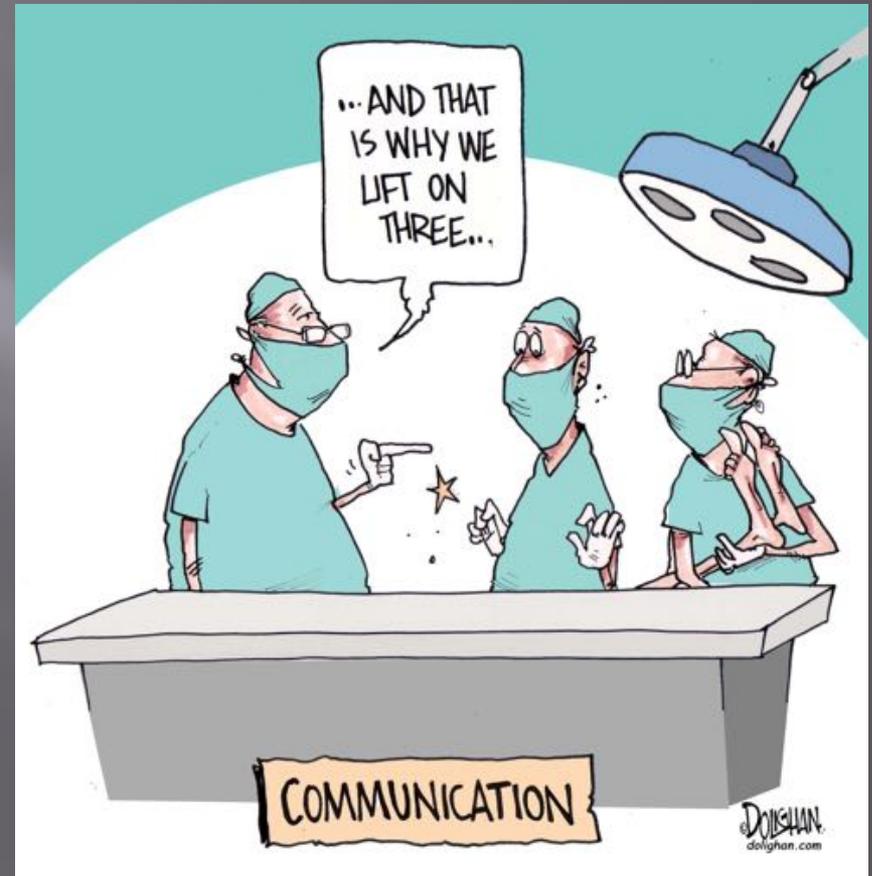
Albert Einstein

- ▣ “If you can't explain it to a six year old, you don't understand it yourself”



Communication

- ▣ #1 issue is inability to communicate the passion students have for their research to non-experts
 - Lay abstract
 - 1-min elevator talk
 - 3-min PhD
 - Pitch to potential investor/reporter



Communication Breakdown

- ▣ Engage your audience
- ▣ Describe project in 1 sentence, 1 slide
- ▣ Focus on what and why
- ▣ Effective listening
- ▣ Pose thoughtful questions



Teaching

- ▣ An essential component of academic life
- ▣ Improve communication skills
- ▣ Broaden knowledge base
- ▣ Time management
- ▣ Mentor undergraduates

TA

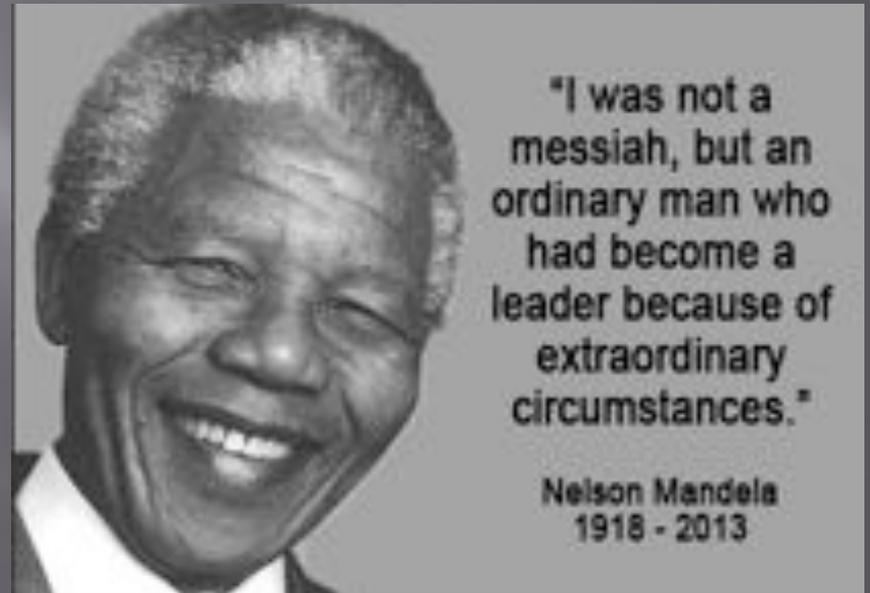
Mobility Grants

- ▣ Meetings and conferences
- ▣ Courses and workshops
- ▣ Visits to collaborators labs
- ▣ Non-academic placements
- ▣ Global perspective



PhDs Are Future Leaders

- ▣ Develop and manage own project
- ▣ Create collaborations
- ▣ New initiatives
- ▣ Organize events and activities
- ▣ Leader inside and outside the lab



Engage Alumni

- ▣ Diverse careers
- ▣ Willing to participate
- ▣ Expertise not \$\$\$
- ▣ Provide networking opportunities
 - Describe your career path
 - What were the challenges you faced?
 - What skills did you learn in graduate school that help you today?



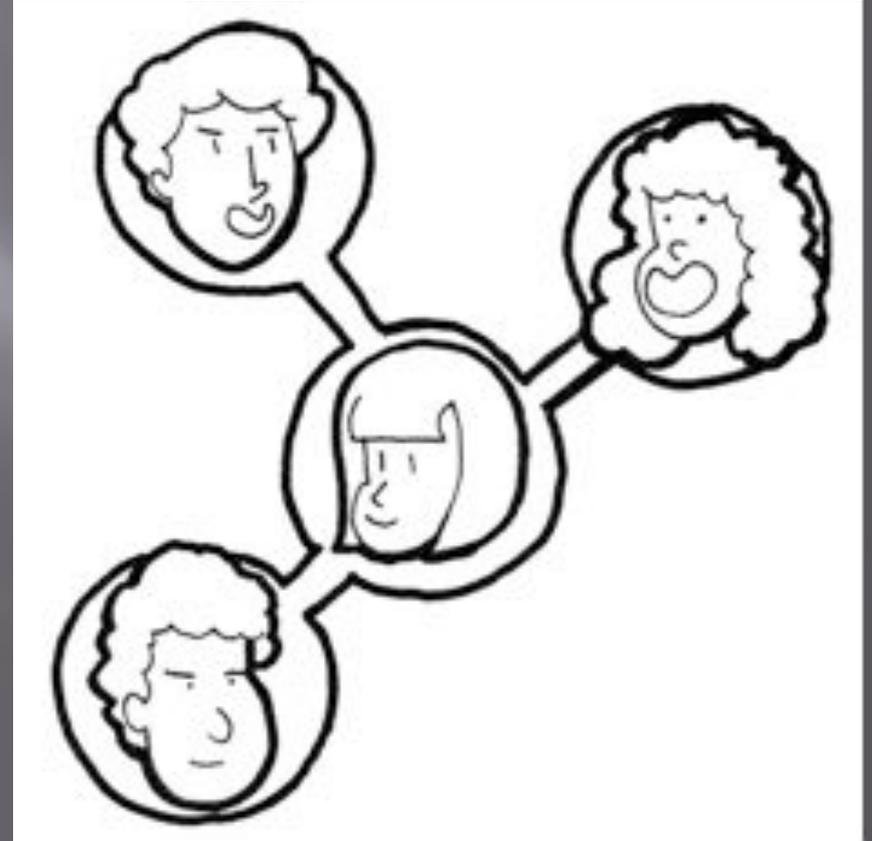
Biochemistry Alumni Interviews



Listen to our graduate program [alumni](#) talk about their unique career paths.

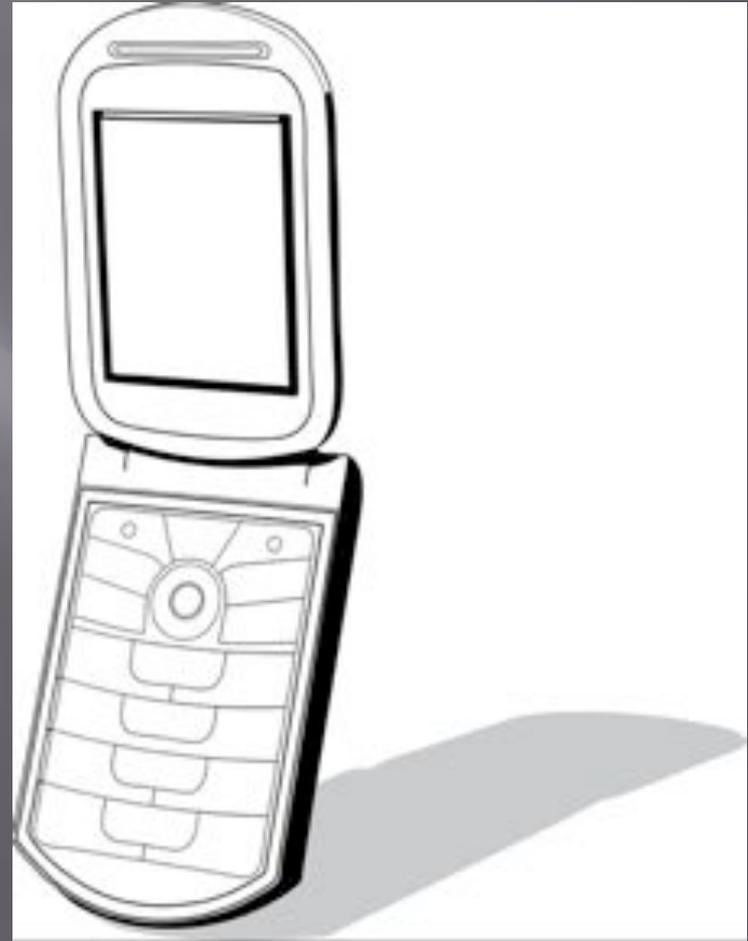
Networking

- ▣ Who knows about you and your work?
 - Supervisors
 - Committee Members
 - Faculty members
 - Collaborators
 - Publications
 - Meetings
 - Seminars
 - Outside Contacts?



Cold Calls

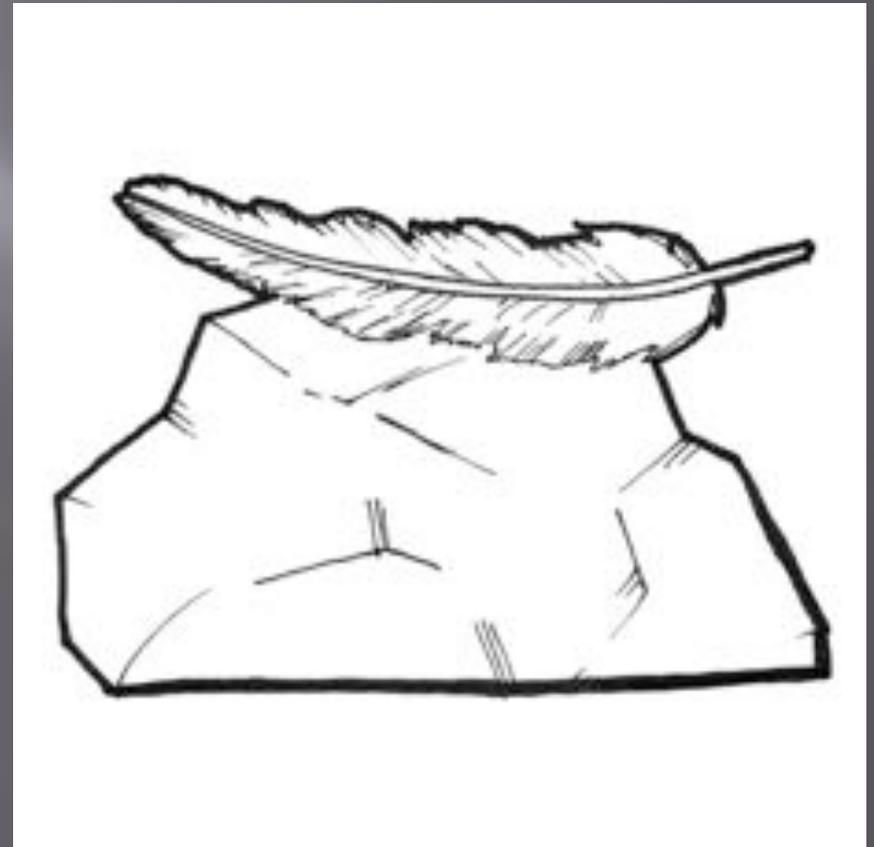
- ▣ Connect with alumni
- ▣ Coffee or lunch
- ▣ Informational interview
- ▣ Be prepared
- ▣ Follow-up
- ▣ Linked-in
- ▣ Report back



Self-assessment of Employability Skills

The Conference Board of Canada

- ▣ Technical skills
- ▣ Communication skills
- ▣ Information management
- ▣ Problem solving skills
- ▣ Personal management skills
- ▣ Teamwork skills
- ▣ Rate yourself on each point (0-5)



Graduate Professional Skills

The logo consists of the lowercase letters 'gps' in a bold, blue, sans-serif font. The letters are thick and rounded, with a slight shadow effect behind them, giving them a three-dimensional appearance. The 'g' and 'p' are connected at the bottom, and the 's' is positioned to the right of the 'p'.

graduate professional skills program

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GPS

Ontario Consortium for
Graduate Professional Skills

Resources

- ▣ At the Helm by Kathy Barker
- ▣ CIHR Guidebook for New Investigators by McInnes, Andrews and Rachubinski
- ▣ Making the Right Moves
 - [http://www.hhmi.org/lab management](http://www.hhmi.org/lab%20management)
- ▣ Charting a Course for a Successful Research Career
 - Alan Johnson
- ▣ Employability Skills Toolkit
 - Conference Board of Canada
 - www.conferenceboard.ca

Mentoring

- ▣ Mentoring is the personal one-to-one guidance and encouragement given by a more experience person to another
- ▣ Advice is free and open but also can be critical
- ▣ Helps build a successful career
- ▣ Not only your supervisor

Role Model vs Mentor

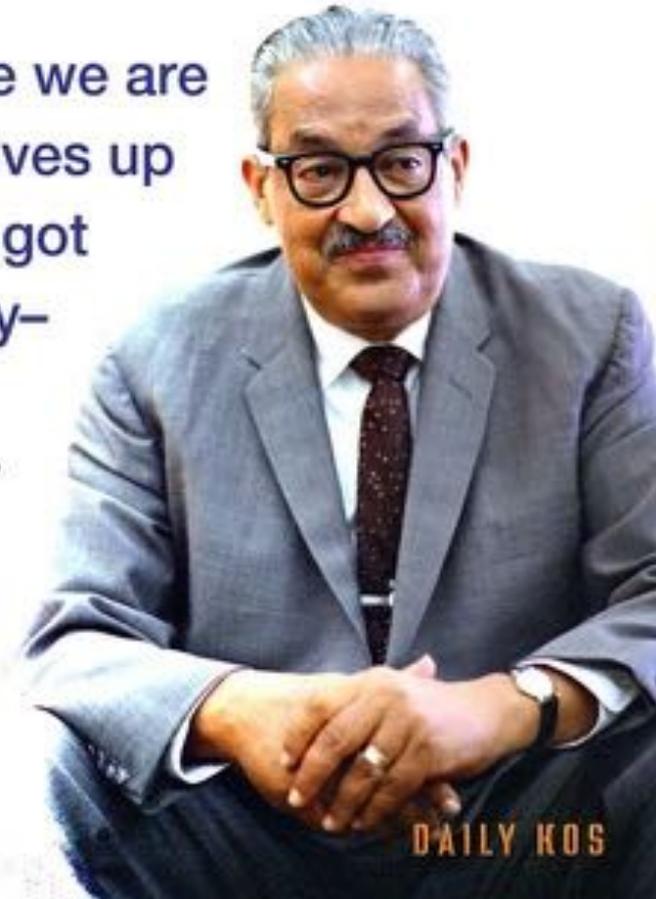
- ▣ Role model: train others to replace yourself, supervisory role
- ▣ Mentor: provide advice and guidance, no direct line of authority
- ▣ Do you have a mentor, do your students?



Self-made?

“None of us got where we are solely by pulling ourselves up by our bootstraps. We got here because somebody—a parent, a teacher, an Ivy League crony or a few nuns—bent down and helped us pick up our boots.”

-Thurgood Marshall



Mentors

- ▣ Parents
- ▣ Teachers
- ▣ Supervisors
- ▣ Senior Colleagues
- ▣ Chair
- ▣ Role Models
- ▣ *Outside line of authority



My Mentors

- ▣ Grade 13 Biology teacher
- ▣ Summer project supervisors
- ▣ Graduate and PDF supervisors
- ▣ Departmental Chair
- ▣ Colleagues*
- ▣ Other Chairs*



What makes a good mentor?

- ▣ Experienced/enthusiastic
- ▣ Accessible/open door
- ▣ Empathetic/respectful
- ▣ Open minded/appreciate differences
- ▣ Consistent/optimistic
- ▣ Patient/good listener
- ▣ Honest/realistic
- ▣ Savvy/seasoned
- ▣ Confidential/sensitive

What a Mentor does

- ▣ Provide advice
- ▣ Helps set specific and achievable goals
- ▣ Encourage strategic thinking
- ▣ Uphold professional standards and ethics
- ▣ Impart specific skills
- ▣ Provide networking opportunities
- ▣ Give moral support
- ▣ Help resolve conflicts

Becoming a Mentor

- ▣ Mentoring undergraduate students
- ▣ Mentoring junior graduate students
- ▣ Teaching Assistant
- ▣ Volunteering
- ▣ Leader in the lab

Mentoring Goals

- ❑ Plan ahead
- ❑ Be proactive not reactive
- ❑ Ask questions
- ❑ Be respectful
- ❑ Show gratitude
- ❑ Be humble
- ❑ Mentor others



Key Questions

- ▣ Where do you want to be in 5, 10 years?
- ▣ How can I get there?
- ▣ Am I on the right road?
- ▣ Do I need to make a change?
- ▣ Who can I talk to?
- ▣ Who do you admire and why?
- ▣ Is my supervisor the right person?
- ▣ Is my network broad/deep enough?

Choosing a Mentor

- ▣ Outside authority
- ▣ Not your supervisor
- ▣ Experienced
- ▣ Someone you respect and trust
- ▣ Willing and able
- ▣ Easy to talk to
- ▣ A role model



yfsmagazine.com

**KEEP
CALM
AND
FIND
A
MENTOR**

The Way Forward

- ▣ Develop soft skills, especially communicating to the non-expert
- ▣ Build network, starting with alumni
- ▣ Develop mentoring opportunities
- ▣ Become a leader



"When you come to a fork in the road...Take it" Yogi Berra



Mentoring Resources

- ▣ <http://ehrweb.aaas.org/sciMentoring/index.php>
- ▣ <http://www.nature.com/nature/journal/v447/n7146/full/447791a.html>
- ▣ <http://www.nature.com/nature/mentoringawards/canada/>

Albert Einstein Quotations

- ▣ “If we all knew what we were doing, it would not be called research, would it?”
- ▣ “Imagination is more important than knowledge.”
- ▣ “If you can't explain it to a six year old, you don't understand it yourself”
- ▣ “Never memorize something that you can look up.”
- ▣ “I have no special talents. I am passionately curious.”

CIHR New Investigator

- ▣ Track record
- ▣ Environment and support
- ▣ Project

Independence

- ▣ Is it clear that the candidate can launch an independent research program?
- ▣ Proof?
- ▣ Training
- ▣ Project
- ▣ Letters

Leadership

- ▣ Is it clear that the candidate has the potential to achieve a leadership position in their field?
- ▣ Evidence?
- ▣ Letters
- ▣ Environment
- ▣ Mentoring

The 75% Rule

- ▣ 75% research (30 hr/wk as a minimum)
- ▣ 20% teaching
- ▣ 5% service

PhD Studies

- ▣ Ph.D.
- ▣ Discipline
- ▣ Research Topic
- ▣ Methodologies
- ▣ Publications
- ▣ Teaching
- ▣ Activities
- ▣ Letters of Reference

Post-doctoral Fellowship

- ▣ With Whom
- ▣ Where
- ▣ Research Topic
- ▣ Methodologies
- ▣ Publications
- ▣ Independence
- ▣ Mentoring
- ▣ Letters of Reference

Supervisory Committee

- ▣ Progress report?
- ▣ Skills development?
- ▣ Multi-track?

Excellence

- ▣ the best way to achieve excellence is with specialization
- ▣ the best in the field

Lab Management

- ▣ Interview carefully, check references afterwards
- ▣ Look past qualifications to compatibility
- ▣ Quality not quantity
- ▣ Ability to learn
- ▣ Can we work together
- ▣ Lab culture
- ▣ Develop careers of others
- ▣ Mentoring to success

Skill Development

- ▣ Critical thinking
- ▣ Writing
- ▣ Oral
- ▣ Presentations
- ▣ Team-work
- ▣ Leadership
- ▣ Networking

Leader in the Lab

- ▣ Essential to spend as much time as possible in the lab
- ▣ Lead by example
- ▣ Teach techniques
- ▣ How to frame an experiment
- ▣ Hypothesis (imagination)
- ▣ Controls
- ▣ Note-taking
- ▣ Time management

Key to Success

- ▣ Failure is the key to success; each mistake teaches us something.

Morihei Ueshiba

(Founder of the Japanese martial art of aikido)

