Preparing for a career in academia: Managing students in research

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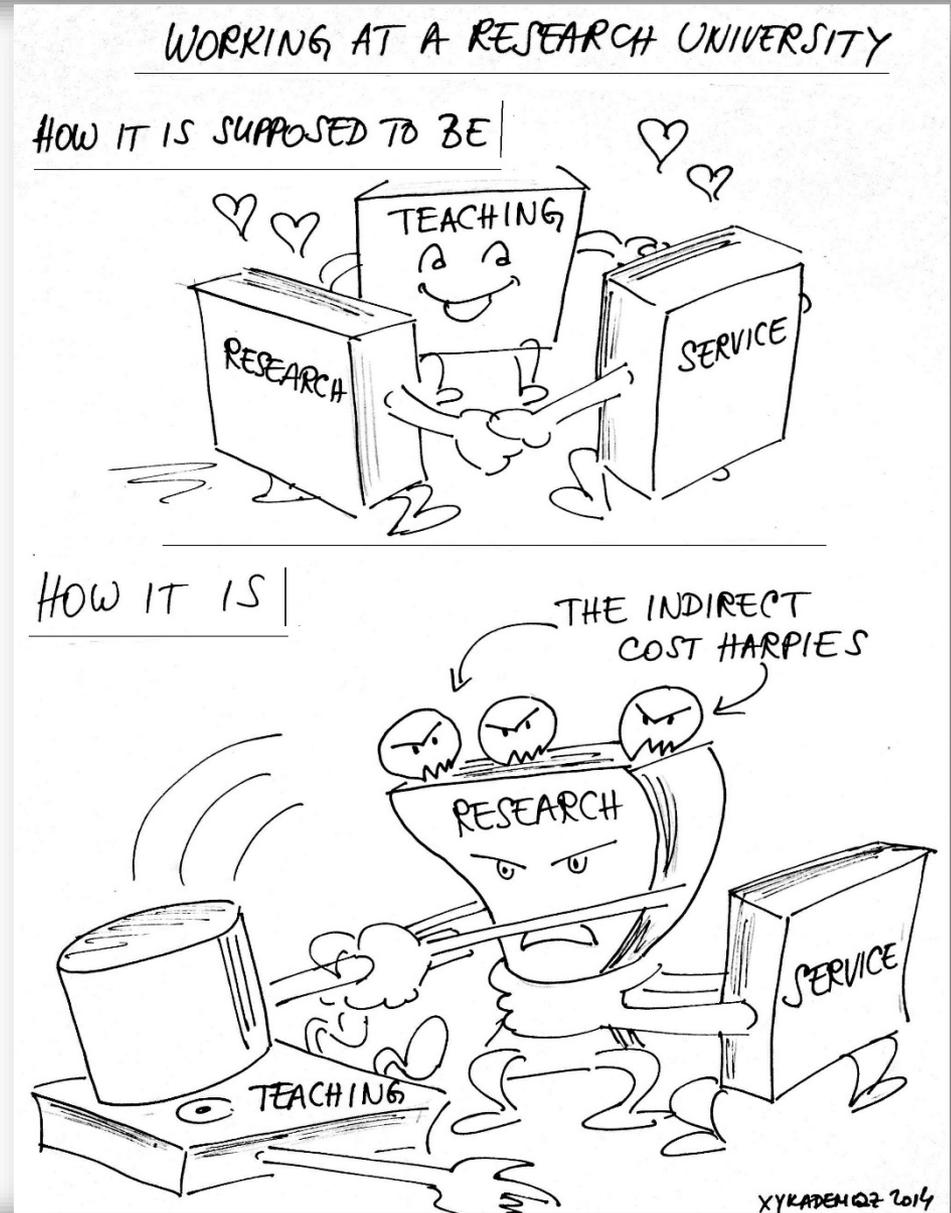
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Disciamers

- *All anecdotes appearing in this work are hypothetical. Any resemblance to real students, current or former, is purely coincidental.*

- *No student was (seriously) harmed during the making of this talk.*

- *Some assembly required. Results may vary. One size fits most.* The ultimate goal is simply to adapt efforts to allow faculty and students to establish work environments that optimize productivity.

The New Faculty Member

- A new faculty member faces challenges associated with meeting and balancing various teaching, research, and citizenship demands.

- Research productivity can determine tenure in many cases

- "Balancing" might be a misnomer…

WORKING AT A RESEARCH UNIVERSITY

HOW IT IS SUPPOSED TO BE

HOW IT IS

THE INDIRECT COST HARPIES

XYKADEMIQZ 2014

*The New Faculty Member**

- Robert Boice indicates typical new faculty members:
  - *spend less time on scholarly writing* *than needed for tenure*
  - *admit to* *overpreparing for class* *and rushing to complete everything. Many spend nearly 30 hrs/wk on class preparation*
  - *experience a sense of* *loneliness, lack of collegial acceptance,* *difficulty in establishing contacts* *who can provide guidance and support*
- New faculty members that are "quick starters":
  - *spend three hours or more per week on scholarly writing*
  - *spend 1–1.5 hours of prep per lecture hour after first semester*
  - *lecture at a pace that allows for active student participation*
  - *regularly seek advice from colleagues, averaging four hrs/week on discussions of research and teaching*

* Robert Boice, *The New Faculty Member,* San Francisco, Jossey-Bass (1992).

Student-based Research Programs

- The demands on faculty time naturally lead to the recruiting of students who perform the majority of the detailed work under the supervision of the faculty member

- The faculty member becomes
  a) an advisor
  b) a manager or supervisor
  c) a mentor
  d) the Devil

New Faculty Workshops

- Effective teaching strategies
- How to write grants
- How to network
- Attending conferences
- Navigating tenure process
- Publishing strategies
- Time management
- Balancing life and job

- **Only rarely is personnel management addressed!**

Find a "Successful" Mentor

- New faculty members are often assigned or encouraged to find a mentor

- Find a faculty member that
  - successfully works with students
  - manages the three areas of stewardship + life

- Carefully observe his/her methods and others within and without your department

Admissions

Admissions

- Admissions processes only vet certain academic abilities in potential students

- In addition to this screening, a faculty member should personally interview potential students

- Only commit to work with those who are
  - academically capable
  - passionate about the field of study and research
  - are highly self motivated, have a strong work ethic, and are willing to go the extra mile

- Students with an entitlement mentality should be avoided

Develop a Positive Environment

Develop a Positive Environment

- Faculty should develop a positive mentoring environment for their students that includes regular affirmation for their efforts
- At the outset, help the student to catch the vision of who (s)he can become through dedicated effort
  - The student needs to commit to becoming the expert
- Build a relationship, which inspires loyalty and productivity. "Your people are your greatest asset."
- Adopt a management style to achieve the best result with each student.
- Set boundaries regarding contact hours, etc.

Mentoring Relationships

- The relationship between a mentor and a graduate student is the most influential relationship in the student's career. **Effective mentors are much more than advisors or teachers.** They are role models, consultants, problem solvers, and supporters. They provide timely and constructive feedback, career guidance, professional contacts, sources of information about research grants and fellowship and job opportunities, and letters of recommendation throughout your professional career. - Columbia University, "The power of mentoring"

In the Beginning

- Help them understand the end game as soon as the project begins to be defined.
  - You'll develop ABC model for the sponsor
  - You'll write a paper on topic XYZ
  - This will help you in your future career because…

- Help them understand how to be efficient and results-driven.
  - Not just putting in hours, though long hours are the norm

- Students should be given the expectation to prepare high-quality journal manuscripts as part of their graduation requirements

In the Beginning (Again)

- A reboot is usually necessary. The management style hasn't worked, student misjudged course time commitments, advisor wasn't sufficiently clear on goals and expectations.

- Prepare for a heart-to-heart at the middle of the first semester to evaluate the relationship and how to move forward.
  - Advisor could carefully invite feedback on management style.

- Often things need to be made more specific.
  - Where possible, adapt project goals to leverage student strengths. Again, loyalty and productivity.

- Be reasonable about goals:
  - 3-4 major semester goals if taking classes. Fewer if TA-ing, more during summer.
  - SMART goal setting
  - Deadline-driven.

- Help the student understand what constitutes "satisfactory" progress and that funding is contingent on that progress.

Setting SMART Goals

Help the students take the overall thesis objectives and develop milestones and shorter-term goals that are:

- **S**pecific
- **M**easurable
- **A**chievable
- **R**esults-focused
- **T**ime-bound

Literature and Prospectus

- [6 mos.] in the laboratory can save you a [day] in the library – Greg Swift
- Sometimes we are so anxious for immediate progress that the student doesn't own the project until too late.
- Completing the prospectus with a thorough literature search early on helps.
- Literature searches. The student should
  - begin a thorough literature search as soon as possible
  - summarize key aspects of the most pertinent papers
  - continue the literature search throughout the research and writing process
  - become steeped in the literature to ensure that they are significantly building on past work and becoming experts in the associated field.
- Prospectus should include clear objectives and milestones and a Gantt chart for students to gauge the required progress. Review and update the chart throughout the prospectus.

The Middle: Research Meetings

- Research meetings could contain the following
  - Explanation of results, placed in context with literature
  - Description of challenges being faced
  - Review of timeline
- Have the students explain what they are going to do next
  - Ensure they understand what it is they're doing and how it fits in with milestones and thesis objectives
  - Gives them practice communicating technically
- Time for encouragement and affirmation
  - Students should be mentally prepared to work through or around obstacles in an excellent way

How Not to Encourage
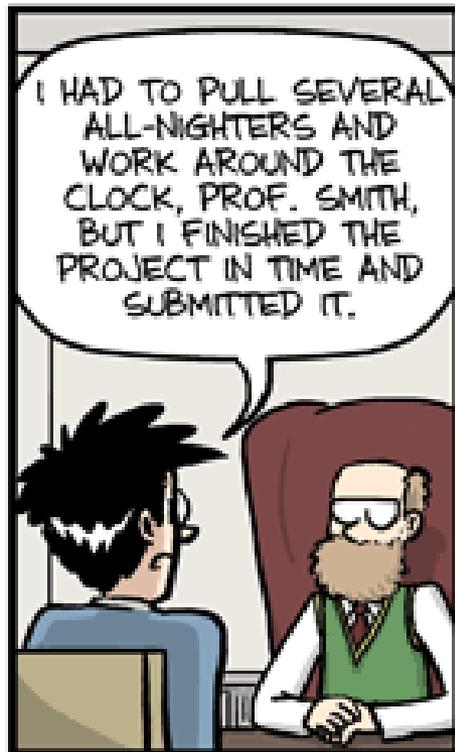
The Middle: Writing

- Writing is individual. Style versus correctness
- Writing is hard!
  - Write early, write often
  - Write about findings for reports and committee research briefs
- Focus on I) Ideas, II) Structure, III) spelling, grammar
- Try to leverage thesis writing with conference papers or journal manuscripts
  - The first draft will likely make you despair as an advisor

Writing is Challenging

The Middle: Evaluations

- Semester evaluations are a time to review academic progress, review progress made toward major semester goals and thesis milestones, and set new goals.

- What if milestone progress isn't happening?
  - If expectations for "satisfactory" progress are laid out in the beginning, critical feedback is easier
  - Invite self-evaluation by student
  - Remind students that project accountability and completion is required for graduation, rather than having "done their time." (Huge impact on employability)
  - Be prepared to hold students' feet to the fire if they are not progressing. Funding or continuing-enrollment consequences for inaction are appropriate.

The Middle: Peer Mentoring

- Graduate students can be effective peer mentors for undergraduate students
  - Benefits the graduate student as (s)he develops management skills!
  - Benefits the undergraduate student
  - Helps increase research productivity

The End Game

- Communicate early with the student regarding expected graduation date
  - When will the student-developed prospectus milestones be met?
  - Balance of goal adaptation versus completion

- Reiterate expectations of manuscript preparation prior to graduation
  - "What you can do in one day here will take you weeks to do after you leave here."
  - Plan for a six-week lag between a thesis defense and leaving for a job and further schooling

Mentoring versus Advising

- An advisor provides curricular advice. A mentor's responsibilities are far broader, including all facets of professional development. Effective mentors model professionalism, demystify the graduate school experience, and help their student enter the profession. Effective mentors' responsibilities don't end with graduation. They take a personal interest in their students' future and provides assistance and advice at crucial moments during the student's career. - Columbia University, "The Power of Mentoring"