Running a lab:
You are what you communicate!

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You qualified for your job with one set of skills…

But you will keep it with another set of skills.

COMMUNICATION SKILLS!
How scientific and technical project leaders misread events in project teams.

- **Unaware** of interpersonal **conflict** in team.

- **Unaware** of personal agendas on part of team members.

- Didn’t **understand** motivations, needs, or expectations of team members.

- Didn’t **listen** carefully in team discussions.

- **Misread** lack of argument as agreement.

(Gemmill and Wilemon, 1997) in Cohen and Cohen, Lab Dynamics: Management Skills for Scientists, 2005
What is in the tenure dossier?

- Significant and continuous **funding**: at least 1 NIH grant and renewal.

- Publication of a significant body of **research** in high-quality journals.

- A national/international **reputation**: scientific presentations, invitations to meetings or seminars, letters from leaders.

- **Teaching excellence**: student and peer assessments.

- **Service**: committee work, study section, editorial board.

- A **self-statement**: Accomplishments, and plans.

Be a good colleague!
It’s very much about relationships with:

- Top scientists in your field, colleagues, students....
- Administrators, etc..
- NIH Program officer, journal editors, etc…
- Support personnel, journalists, etc…
WHEN TO TELL YOUR ADVISOR YOU'RE GOING ON VACATION

MONTHS BEFORE
They'll ignore you, but make sure you get it in writing for when they later forget.

TWO WEEKS NOTICE: A BAD IDEA
"You're leaving? Before you go, can you finish what you haven't done all year?"

THE AWKWARD PERIOD
if you haven't told him/her by now, you might as well wait until the night before.

THE NIGHT BEFORE
"Bye I'm leaving see you later please don't fire me!"

GET ON PLANE VACATION!

THE VACATION MID-WAY POINT
if you get busted:
CONFESS "actually... I'm in another continent"
DELAY "uh, yeah, it'll take me a few days..."

AFTER THE FACT
over-compensate by sending out a lot of e-mails.

... NEVER
two weeks without talking to your advisor is not a vacation, it's normal.
Establish a group culture that supports transparent communications, good relationships, clear expectations, etc.

Organize to reflect your values.
Consider your own style and strengths.

- What are you motivated by in science?
- Will you be more effective at the bench or the desk?
- Do you want to manage details, or deal only with the big picture?
- Motivator or facilitator?
- Do you work better with peers, bosses, or subordinates?
- Do you even like people?
Know yourself:

Strengths, weaknesses, values, 5 year plan.
Find a mentor- find 2 or 3!

• Scientific
• Institutional
• Personal
• Intellectual
Denial
Build a framework to support the culture you want.

• The lab manual
• Stocks, ordering
• Lab notebooks
• Lab jobs
• Meetings
What to communicate? What is important.

\[ \frac{508}{227} = 2.24 \]

\[ 2.13 \]

\[ 1.15 \]

\[ 0.95 \]

\[ \Sigma_f \]

\[ \sigma_f \]

\[ \sigma_f = \text{fission cross-section above threshold} \]

\[ \lambda_f = \text{neutrons per fission} \]

\[ p = \text{probability that first collision fissions} \]

\[ 1 - p = \text{does not fission below threshold} \]

\[ q_f = \text{probability, of \{fission\} below threshold} \]

\[ 1 - q_f = \text{probability, of \{capture\} below threshold} \]

\[ \frac{q_f}{1 - q_f} > 1 \]

\[ \text{Condition for chain reaction} \]
Be up front about ethics.
Be clear about authorships.

- What makes a good paper?
- Who writes the paper?
- How is authorship decided?
- What are your ethical considerations?

http://www.icmje.org/urm_main.html uniform requirements for manuscripts from the international committee of medical journal editors
Talk about data.

- Formal lab meetings.
- Informal lab meetings.
- Multi-lab or topic meetings.
- One-on on meetings.

Make lab meetings useful to all.
Journal clubs are an important tool.

- To discuss the current and relevant literature.
- To teach critical thinking.
- To teach the art of giving a presentation.
- To establish and maintain the lab culture within science.

So don’t leave journal clubs up to chance.
Talk and think about funding.
Bad people are much worse than no people!
Hiring lessons from P.I.s

- Call all recommenders.

- Don’t hire people who are self-centered, arrogant, can’t get along with others....

- Hire for character, not for technical expertise.

- Use the probation period.

- Make good use of the interview.

- Follow your gut reaction.
A collaborative culture must be encouraged and rewarded and **protected**.

- Put new people to work with more **experienced** ones.
- **Facilitate** collaborations outside the lab.
- **Maintain** collaborations with lab members who have left the lab.
Consider a collaboration contract.

• Who will be involved?

• What will each person’s contribution be?

• If a paper comes out of the collaboration, who will get authorship?

• What happens if another person’s skills are needed?

• When is the collaboration over?
Mentoring will be assumed.

- Research techniques, good science...
- Writing a grant, budgets..
- Writing, reviewing manuscripts.
- Communication and networking.

Learning to use criticism!

Compact between Postdoctoral Appointees and Their Mentors [www.aamc.org/postdoccompact](http://www.aamc.org/postdoccompact)
Formal self-evaluation: How do you think you are doing?

(Otteman 2002, Science’s SAGE KE:38, 5.)

- Experimental.
- Productivity.
- Notebook, record keeping, and organization.
- Gain of scientific knowledge and critical thinking.
- Lab meeting participation.
- Lab citizenship.
- Communication within the lab, outside the lab, and with the P.I.
Find a way to get help for those who need it.

- Health services.
- Ombudsman.
- Chairperson
- Dean.
- Personnel office.
Consider pathways and life choices other than your own.

Remember that your mentee is NOT a clone of you.
### Generational Profiles

from Bland et al, 2009, Faculty Success through Mentoring, adapted from Crisp, 2003

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Silent/veteran</th>
<th>Baby boomer</th>
<th>Gen X</th>
<th>Millennial/Gen Y</th>
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<td>Driven</td>
<td>Balanced</td>
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<td>Love/hate</td>
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<td>Civic</td>
<td>Team</td>
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<tr>
<td>Outlook</td>
<td>Practical</td>
<td>Optimistic</td>
<td>Skeptical</td>
<td>Hopeful</td>
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</table>
The 9 year student

Everything works.

Bad citizen

The short fuse

Lab characters
We are all different!
Many people find criticism to be immediately confrontational.
Conflict is interwoven into every event and relationship.

- All communications may mean something else to others because of differences in needs, style, perception, goals, roles, values, unclear expectations….etc.
People get upset when their expectations aren’t met.
What kind of conflicts might you find? Which are you willing to deal with?

- Project problems
- Authorship problems
- Personnel problems.
- Personal problems.
- Interaction with P.I.
How do you deal with conflict in the lab?

And can you do it better?
There are two ways you can learn to better deal with conflict:

Manage your own emotional control and communications.

Have a process to reduce and mediate conflict.
Be competent with your emotions.

• Learn to *really* take criticism.
• Establish trust with predictability.
• Assume best intentions.
• Anger is also intimacy.
Dealing with someone’s anger...

Do not respond in anger.

Identify the immediate problem and underlying issues.

Empathize to acknowledge the validity of the other person’s emotions or situations.

Assure the other person that you are working towards the same goals.

Be honest about your own responsibility and fault.
DO NOT PUSH
THE RED BUTTON

• “Always”
  “Never”

• “You …..“

• Bring in older issues.

• Bring up character flaws.
Know yours.
Work hard at communication!
It’s not just about the delivery.

- Learn to listen.
- Try to understand.
- You don’t have to fill the silence.
- Avoid preparing what you are going to say while someone is still talking.
Gender and communication?

• Mitigating statements with qualifiers.

• Complex sentences.

• Hesitation when speaking, as if searching for the right words.

• Rising intonation at the end of the sentence.

• Talking about own life to establish rapport.

Deborah Tannen, Talking 9 to 5: Men and Women at Work, 1994.
Small talk isn’t so small.

Hello.

Hi.

How are you?

I’m fine, thanks.

And you?

I’m fine, too.
“When I needed lunch, I would buy it (and be seen doing so) in one of the NIH cafeterias.”

Harold Varmus in *The Art and Politics of Science.*
Fair process counts more than outcome.
Options over time

<table>
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<th>Time</th>
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<tr>
<td>Now</td>
<td></td>
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</table>
Some ways to deal with conflict:

• Avoid it.
• Be accommodating.
• Take a position.
• Consider interests, not issues.
Scientists commonly take a positional approach.....

A position is a claim to answer the immediate question (the issue).
Often stated to be the only solution to the issue.
Often is the first option that comes to mind.
....but there are problems with a positional approach.

• It narrows options in the beginning to two positions, and neither one may be the best answer to the issue.
• It tends to either produce a winner and loser- or two losers.
• May harm the relationship.
Try an interest-based approach.

Interests are needs that must be satisfied and values that must be preserved, such as:

- Self- esteem
- Good working relationship
- Research excellence
- Financial security
- Reputation
The process of interest-based negotiation.
Difficulties in practice with an interest-based approach-

Against our “nature?”

Scientists are trained to be solution-oriented.

Rewarded for defending “solutions” well.

Slower than other approaches.

Strong emotions are triggered.
Maintain group morale.

- Make the lab feel part of the bigger world of science.

- Help each person feel part of the lab: don’t let anyone be marginalized.
Celebrate.
The dysfunctional lab can be fixed.

- Is it the **science**?
- Is performance (research, citizenship, mentorship) recognized and **rewarded**?
- Is it the **group** dynamic? Is it an individual? The P.I.?
- Is it **you**? Are you there? Are you depressed or unpredictable? Are you pushing too hard, or appearing uninterested?
Get some perspective.

http://www.halverson-law.com/1-5.htm#start
Think about team communication.
Don’t leave the bench too soon.
Evolve with your lab!

- Big lab, small lab.
- More competent personnel.
- Failure and success.
Remind yourself to think BIG.
Activism takes you to the realm of controversy.

How to Lose Your Political Virginity while Keeping Your Scientific Credibility
Are scientists activists?
The economic anarchy of capitalist society as it exists today is, in my opinion, the real source of evil.

(Albert Einstein, 1949)
There **is** a strong culture of activism in science.

But it is not yet the mainstream story.
Am I Making Myself Clear?
A Scientist's Guide to Talking to the Public

Richard Hayes and Daniel Grossman
Talking to non-scientists....

- Tell a story- it isn’t about the data.
- Explain why the work or result it is important.
- Avoid technical and specialized language.
- Be brief, avoid detail.
Converse beyond the bench.

You can find a way to communicate.

http://ed.fnal.gov/projects/scientists/
What can you do now?

• Assess your progress, even if your PI doesn’t.

• Gather skills and information. Workshops, seminars, books, conversation.

• Study successful PIs: Research, communication, organization.
WRITE every day!

Write up your data.
Write papers.
Write up proposals for future research.
Write a grant.
Edit other’s grants and papers and proposals.
Talk about data and research and science.
Cultivate relationships.

Don’t let yourself get isolated!

Develop a network of mentors, colleagues, friends.
“….I mean, you can take a piece of information, and you can do lots of things with it. **You can try to publish it; you can try to develop a practical aspect of it, like a therapy, or a machine; or you can look at the implications in the public health arena, or the public policy arena.** I guess I’ve always considered those a kind of continuum of ways that information becomes valuable, and ways that I take information and then try and go further with it.”

David Baltimore
Be revolutionary.

Thanks!

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