Responsible Conduct of Research, Scholarship, and Creative Activities

Mentor/Trainee Relationships

Objectives

- Identify at least 10 interests and 10 responsibilities each for trainees and mentors in your situation
- Describe a mentor-trainee relationship that would contribute to learning, collegiality, and scholarly productivity in your situation
- Describe a mentor/trainee conflict that you have experienced or observed, and indicate how you might resolve that conflict
- List at 3 provisions of the Graduate Student Rights and Responsibilities document that surprised you (http://www.msu.edu/unit/ombud/GSRRfinal.html)

Mentors and Trainees

- Mentor
  - Person who educates trainees about research
  - Possible mentors include a student's advisor, other faculty members, a lab director, post-doctoral fellows, advanced students, and other colleagues from your discipline
- Trainee
  - Person who is learning about research
  - Possible trainees include students, post-doctoral fellows, new employees, or people who are learning new or advanced research methods

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Michigan State University Graduate School, 2010 http://grad.msu.edu/

Interests refer to an individual's "stake" in a situation.

- For example, student trainees have an interest in graduating, and mentors have an interest in their scholarly reputations.
- Think about your situation before you advance to the next slide. What are the trainee and mentor interests in your situation?

Responsibilities refer to work that an individual is expected to do, especially with respect to their responsibilities to other people.

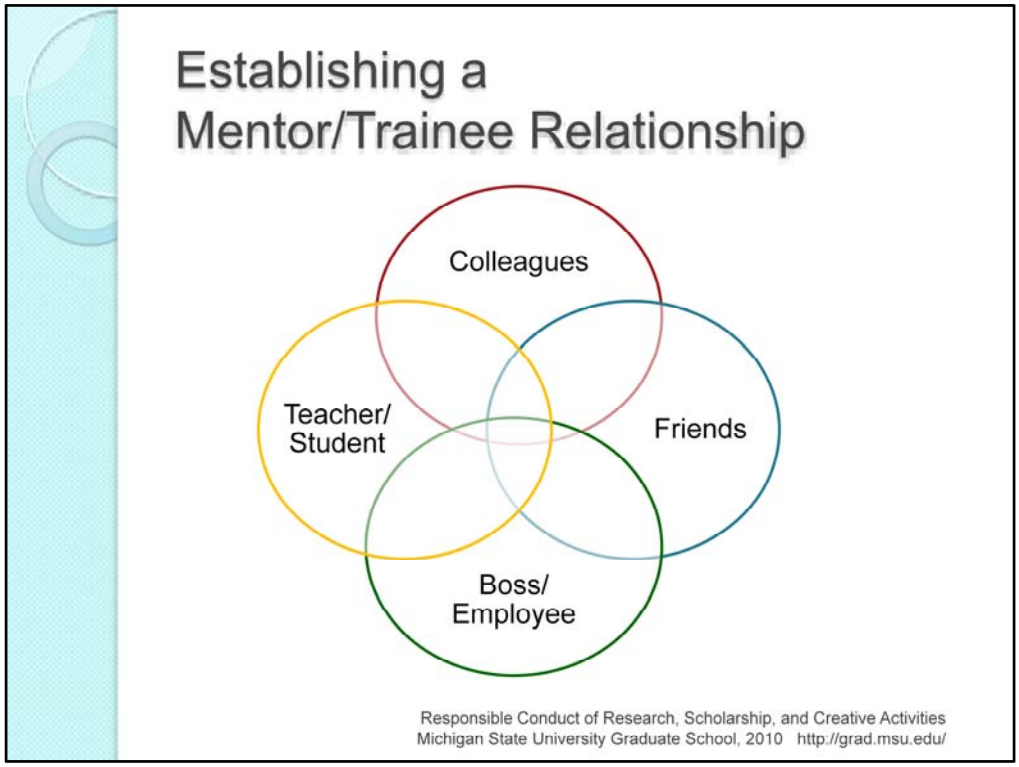
- For example, student trainees have a responsibility for effort in learning situations, and mentors have a responsibility to educate trainees about responsible conduct in research.
- Think about your situation before you advance to the next slide. What are the trainee and mentor responsibilities in your situation?

Identify at least 10 interests and at least 10 responsibilities, then compare your lists with others.

Interests and responsibilities will vary across trainees and mentors, degree programs (e.g., master's or doctoral degree), various disciplines, etc.

Identify at least 10 interests and at least 10 responsibilities, then compare your lists with others.

Interests and responsibilities will vary across trainees and mentors, the mentor's faculty status (e.g., assistant/associate/full professor), the nature of the university (e.g., research intensive or not), various disciplines, etc.



This slide suggests some different aspects of mentor/trainee relationships – certainly there are other possibilities. The different types of mentor/trainee relationships almost always overlap – they are not mutually exclusive!

Your task is to think about the extent to which you prefer or value teacher/student, boss/employee, colleagues, or friends relationships. The nature of the relationship may change as trainees earn the respect of their mentors by becoming more expert and independent.

Think about the extent to which each type of relationship contributes to:

- Trainee learning and scholarly growth
- High-quality, "cutting-edge" research, scholarship, and creative activity
- A scholarly environment in which trainees and mentors want to work
- Responsible conduct of research

Have a conversation with your mentor/trainee about the preferred relationship. Clarify expectations by discussing mentor/trainee interests and responsibilities for your specific situation. Involve other members of the research team if appropriate.

Identify multiple mentors who collectively can guide you in all aspects of your work.

Concerns

- Finding mentors
- Need for "cultural mentors"
- Conflicts between mentors and trainees
- Amorous or sexual relationships
- "Toxic" mentors
- Networking
- Equal opportunity

Students should seek mentors whose research interests and expertise fit with student interests. On a more practical level, students want mentors who are available, who establish collegial relationships within the research group, and who have a reputation for outstanding work.

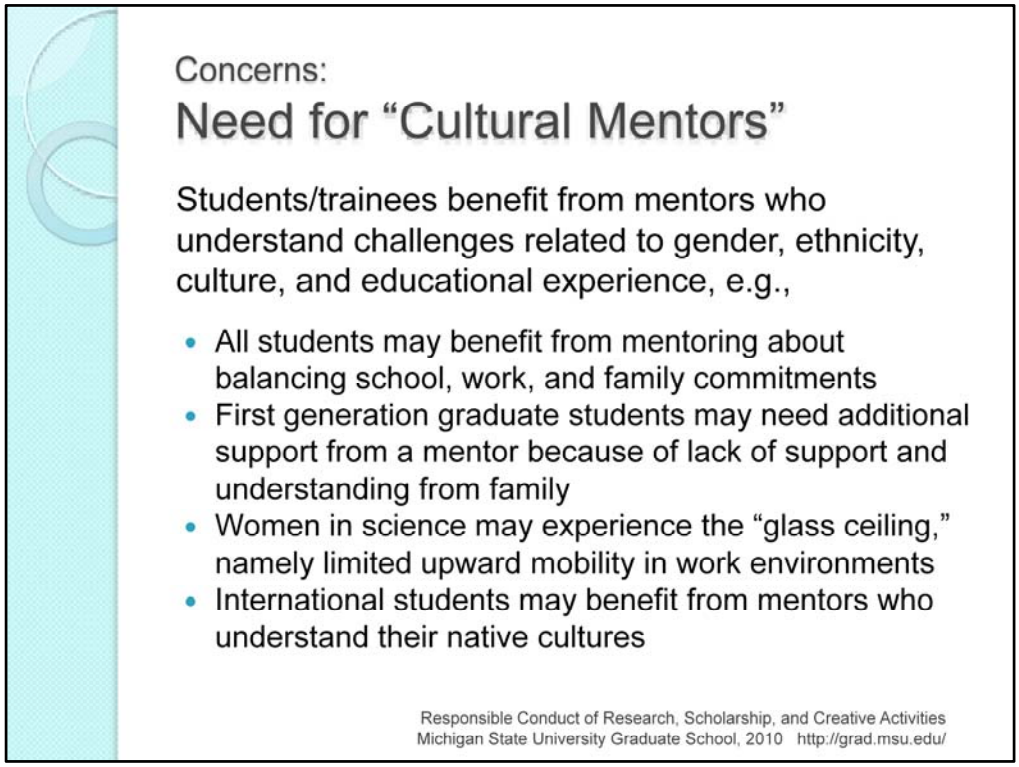
Methods of locating mentors include: (a) studying the research literature for publications on topics of interest; (b) attending interesting sessions at professional conferences; (c) using the Community of Science database to find experts on selected topics at the student's university or elsewhere; and (d) asking other students or professors for their suggestions.

Graduate students typically have more than one mentor:

- The student's primary mentor usually serves as the student's academic advisor and thesis/dissertation director
- Other mentors may serve as members of the student's guidance committee
- Additional mentors may be identified to assist with research projects, including the student's thesis or dissertation

Graduate students should identify mentors and establish their guidance committees within the first year of study (or as soon as practical)

- Early selection of mentors provides the student with the best possible support for the scholarly work associated with the degree program
- An interdisciplinary group of mentors can help the student produce "cutting edge" scholarly work
- Students may add or change mentors as needed
- At MSU students may also change advisors if needed



More information about the glass ceiling. The glass ceiling refers to limited upward mobility in work environments. The glass ceiling is associated with lower salaries and lower probability of earning promotion and tenure. Several factors contribute to (or reflect) the glass ceiling.

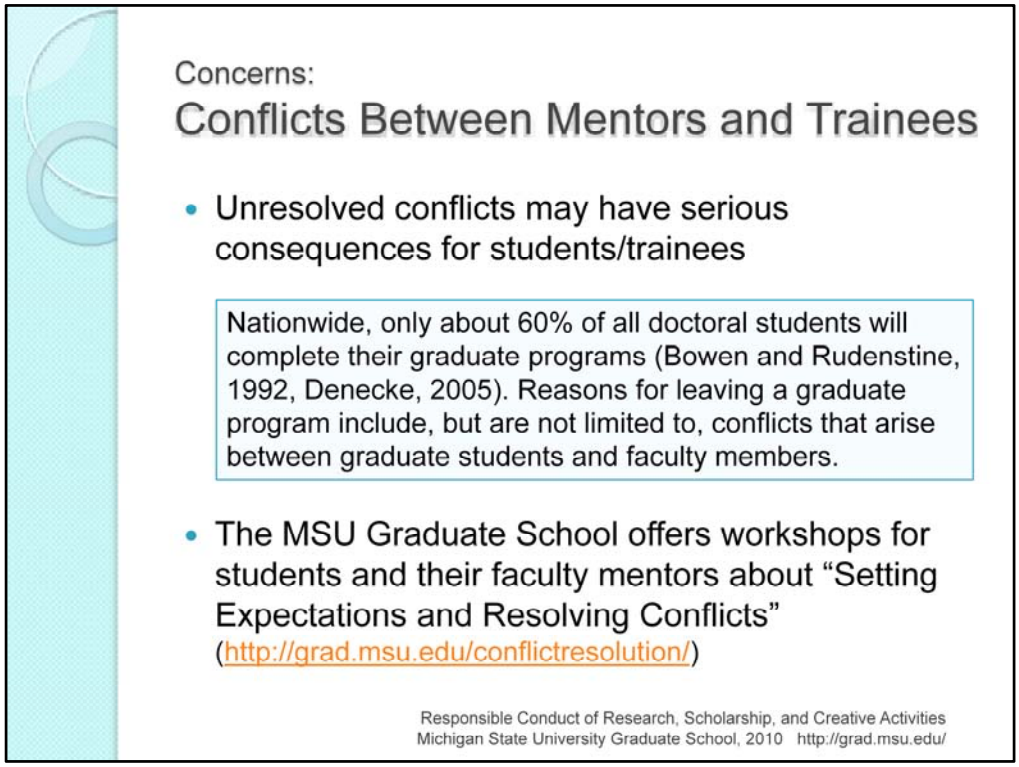
- Women tend to have smaller labs and fewer research resources than male scientists
- Women sometimes are expected to teach more than men
- Women sometimes are expected to do more service and outreach than men – this affects time and energy available to do research
- Women with families and women who are pregnant often are at a disadvantage in reappointment, promotion, and tenure (RPT) deliberations because of interruptions to their work time
- Many academic departments and research centers have strong "good old boy" networks that sometimes result in discrimination against women

Sources that support these conclusions about the glass ceiling:

- NSF ADVANCE – for the advancement of women in science and engineering careers: Glass Ceiling (series of presentations by NSF ADVANCE grant recipients). http://www.portal.advance.vt.edu/Categories/Diversity&Equity/Glass%20Ceiling.html
- Sue V. Rosser. (2004). *The Science Glass Ceiling: Women Scientists and the Struggle to Succeed*. New York: Routledge.

Source about mentoring students from other cultures:

- Bagley, K. (2009). Addressing Cultural Caveats: Tips for mentoring underrepresented groups. *The Scientist, 23*(12), http://www.the-scientist.com/article/print/56180.



The mentor/student relationship matters because:

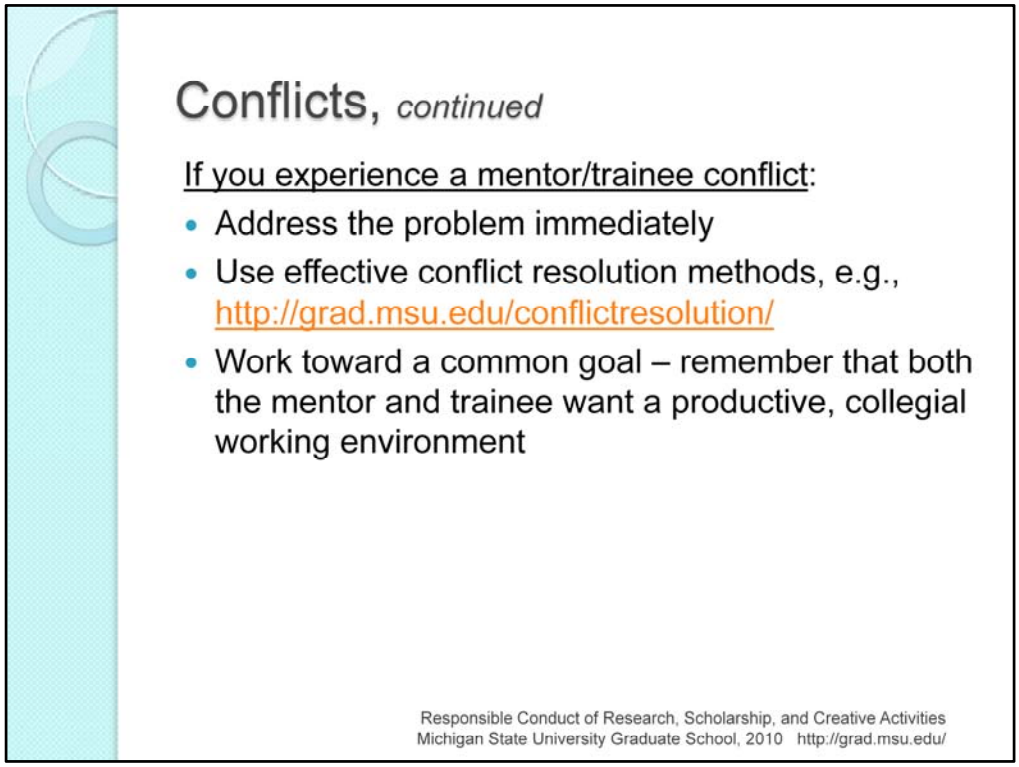
- The research mentor is a key individual in the student's formal and informal education.
- The mentor and student are likely to have decades of continuous interactions via professional societies.
- Careers depend on good letters of recommendation from mentors.
- Faculty mentors often have the power to determine graduate assistantship (GA) stipends, work assignments, resources, advice, etc.
- Students typically depend on a small group of faculty (guidance committees) who have the needed expertise to guide the student's scholarly development. Because there are relatively few experts on any given subject at most universities, students have limited flexibility when seeking to change mentors.

Unresolved conflicts may have serious consequences for students:

- As noted on the slide, conflicts with faculty members lead some students to leave the university without completing the degree program.
- Unresolved conflicts tend to erode previously collegial working relationships between the student and faculty mentor, as well as relationships involving other members of the research group. This can affect everyone's learning and productivity.
- Students who are no longer "in favor" with their mentors may lose GA positions, receive less favorable work assignments, and receive less frequent advice. Their mentors may choose not to write letters of recommendation, or they may write less favorable letters.
- The mental distress associated with conflicts may affect the student's work and well-being in all environments.

Unresolved conflicts also have consequences for faculty including but not limited to (a) loss of scholarly productivity and (b) wasted time and money related to work that is not completed, students who do not finish degrees, or students who leave for another mentor.

Students and mentors are encouraged to visit the conflict resolution home page (http://grad.msu.edu/conflictresolution/) for a full description of the workshop, a PowerPoint presentation about conflict resolution, and a series of video vignettes used in the conflict resolution workshop. Of course, participation in the "Setting Expectations and Resolving Conflicts" workshop is strongly encouraged.



If you experience a mentor/trainee conflict:

Address the problem immediately
- Before learning and productivity are negatively affected
- Before the problem gets worse and others become involved

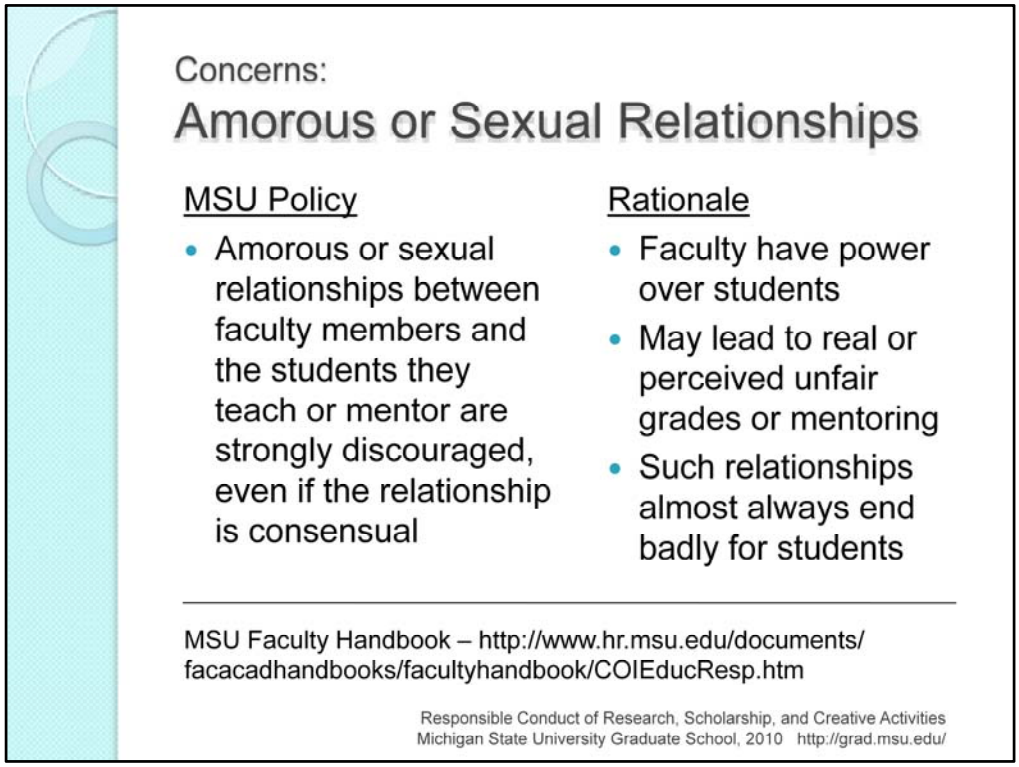
Use effective conflict resolution methods
- Do not assign blame – instead seek clarification and education
- Act on facts, not emotions
- Use techniques learned in the Graduate School workshop (http://grad.msu.edu/conflictresolution/)

Work toward a common goal – remember that both the mentor and trainee want a productive, collegial working environment

Conflicts, *continued*

Possible approaches to resolving conflicts:

- Have a conversation with your mentor/trainee
  - Describe the conflict
  - Seek understanding about best practices
  - Discuss ways in which both parties may be contributing to the problem
  - Develop a plan for resolving the conflict and preventing future conflicts
- Consult with the Graduate Coordinator or Chairperson of your department, the MSU Ombudsman (http://www.msu.edu/unit/ombud), or the Dean of the Graduate School



The various mentor/trainee relationships described on the previous slide are appropriate. But there is one type of relationship that is inappropriate, namely an amorous or sexual relationship.

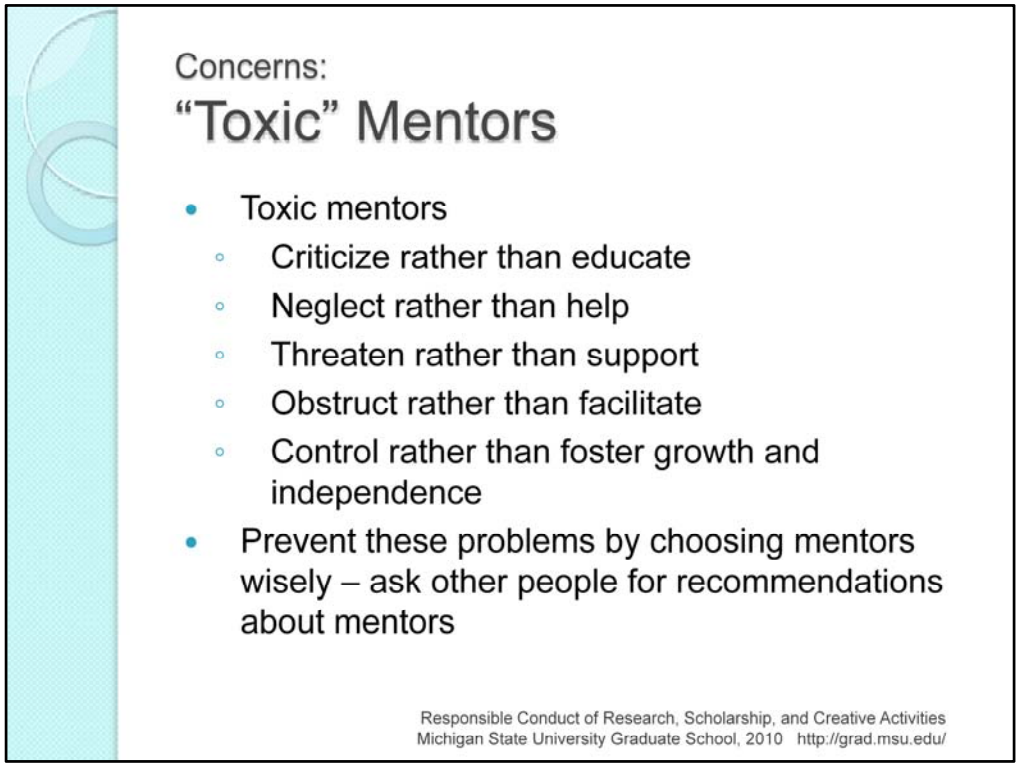
- Most universities have policies forbidding or discouraging amorous or sexual relationships between faculty and students.
- Many places of business have similar policies.

Amorous or sexual relationships between faculty members and students are inappropriate because:

- There is a definite power differential between the faculty members and students – the mentor always has power over the student in the form of grades, access to mentoring, quality of mentoring, scholarly opportunities, networking, letters of recommendation, etc.
- The student in the amorous or sexual relationship may expect "favors" from the faculty mentor, and other students in the research group may perceive favoritism. Alternately, the "couple" may try so hard to keep the relationship private that the student is disadvantaged in the academic and research settings.
- If an amorous or sexual relationship is discovered, it almost always ends badly for the student. Possible consequences may include loss of reputation, unfair grades, and disrupted working relationships with other individuals in the research group. The faculty member may face similar consequences, as well as possible loss of employment.

MSU's policy can be found in the Faculty Handbook (http://www.hr.msu.edu/documents/facacadhandbooks/facultyhandbook/COIEducResp.htm). The title of the policy is *Conflict of Interest in Educational Responsibilities Resulting From Consensual Amorous or Sexual Relationships*.

- "It is … the policy of Michigan State University that each faculty member, graduate teaching assistant and other University employee who has educational responsibilities for students shall not assume or maintain educational responsibility for a student with whom the faculty member, graduate teaching assistant or other employee has engaged in amorous or sexual relations, even if such relations were consensual."
- "Whether such amorous or sexual relationships predate the assumption of educational responsibility for the student, or arise out of the educational relationship, the faculty member, graduate teaching assistant or other employee shall immediately disclose the amorous or sexual relationship to the relevant unit administrator, who shall promptly arrange other oversight for the student." (policy continues)

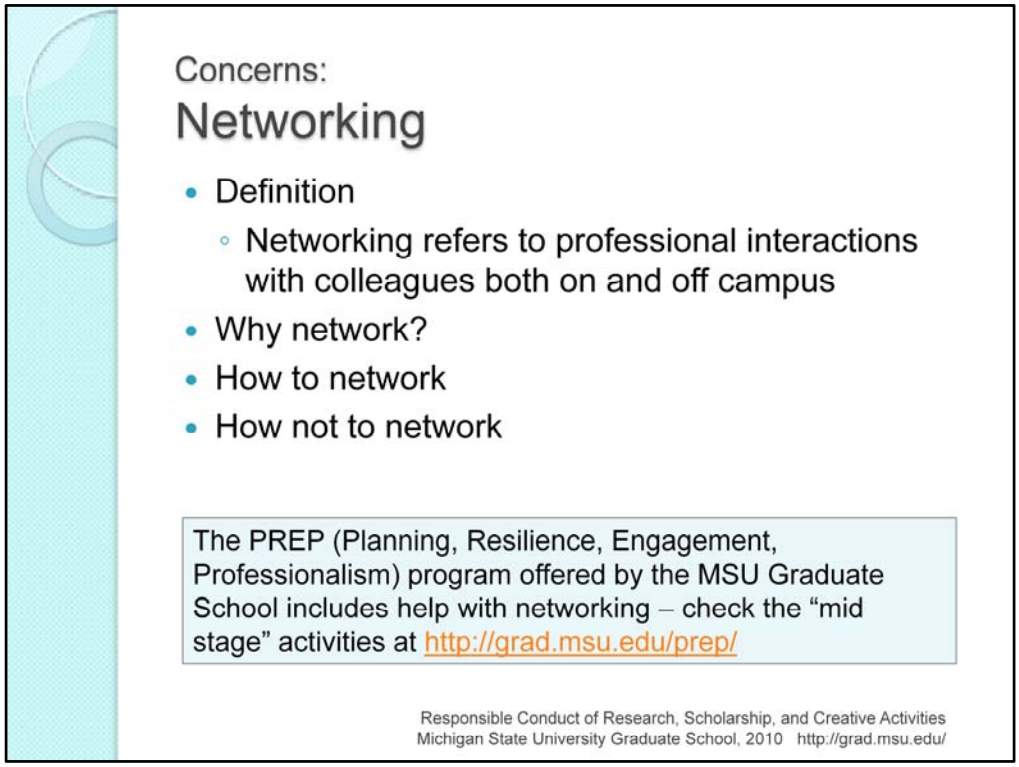


If you have a toxic mentor:

1. Consider ways in which you may be contributing to the problem. Fix your own behavior first.
2. Give positive reinforcement to your mentor when she/he helps you appropriately (e.g., "aha, now I get it", "thank you for the opportunity")
3. Consider having multiple mentors so that other people can assist you in ways that the toxic mentor does not.
4. Consider leaving the toxic mentor.

<u>Sources of information about toxic mentors</u>:

- D. McCrory. (July 27, 2008). Toxic Mentors: 5 Warning Signs Your Relationship is Heading South. http://www.thecorporateentrepreneur.com/2008/07/toxic-mentors-5.html
- Clinical Learning Environment.(n.d.). http://www.ntrg.u-net.com/html/clinical_learning_environment.html



Why network?

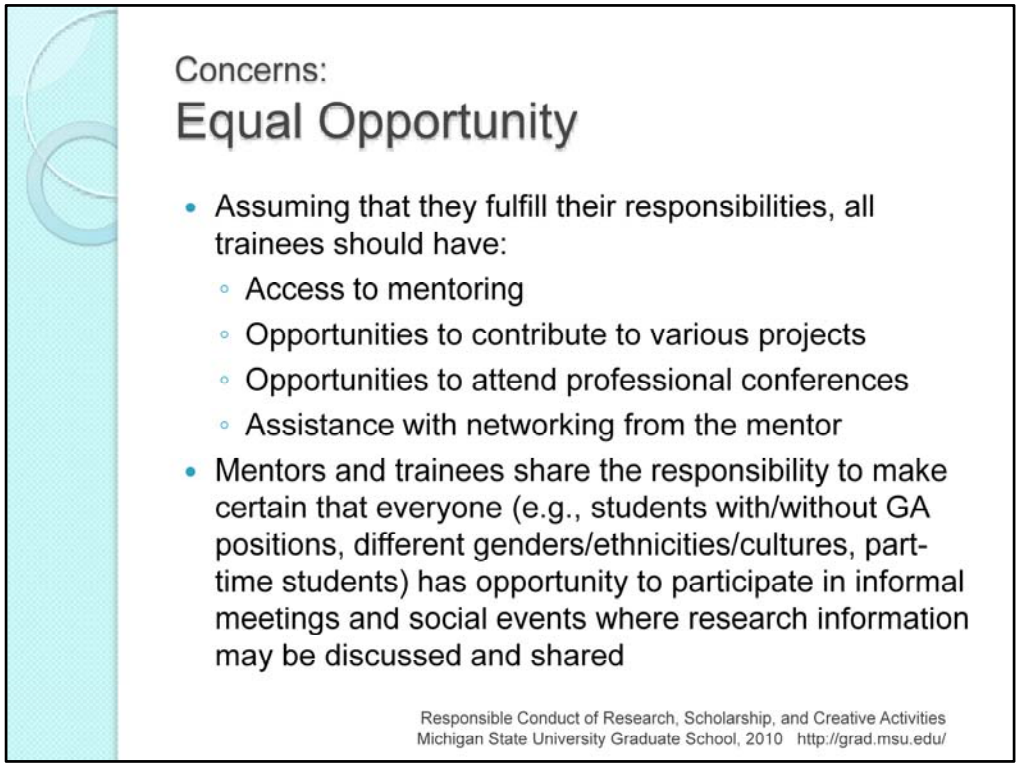
- Interactions with colleagues makes work more pleasant
- Work with colleagues can enhance your research
- Colleagues can alert you to jobs or other possibilities

How to network

- Getting started
  - Introduce yourself to people on and off campus who share similar research interests
  - Ask your mentors to help you meet important people
  - Attend conferences where you are likely to meet potential colleagues
  - Use business cards
  - Write thank-you notes
- Using the network
  - Ask colleagues to review your work and offer to reciprocate
  - Propose and implement ideas for joint projects

How not to network

- "Burn bridges" by not following through on commitments
- Avoid conferences and other venues where you might meet people



Learn more from these MSU documents:

Graduate Student Rights and Responsibilities
http://www.msu.edu/unit/ombud/GSRRfinal.html

Medical Student Rights and Responsibilities
http://grad.msu.edu/msrr/docs/msrr.pdf

Mentoring and Research Misconduct

- Research misconduct can occur when
  - A mentor fails to teach and supervise a trainee who engages in inappropriate research practices
  - A trainee fails to follow a mentor's teachings
- A study about mentoring and research misconduct is presented in the next several slides

Wright, Cornelison, and Titus Study

- Authors – David Wright, Jered Cornelison, and Sandra Titus, MSU
- Research question – did inadequate mentoring contribute to or fail to prevent misconduct?
- Methods – analysis of 44 Office of Research Integrity (ORI) closed cases where respondent was a graduate student, research fellow or post-doc
- Synopsis of results – graduate students, research fellows, and post-docs were 3.7 times more likely than faculty members to be respondents in ORI misconduct cases during the time period from 1993-2002

Wright, Cornelison, and Titus Study:

ORI Cases (n=44)

f	Type of Misconduct
43.2%	Falsification (n=19)
29.5%	Fabrication/falsification (n=13)
20.5%	Fabrication (n=9)
4.5%	Falsification/plagiarism (n=2)
2.3%	Fabrication/plagiarism (n=1)

Wright, Cornelison, and Titus Study:

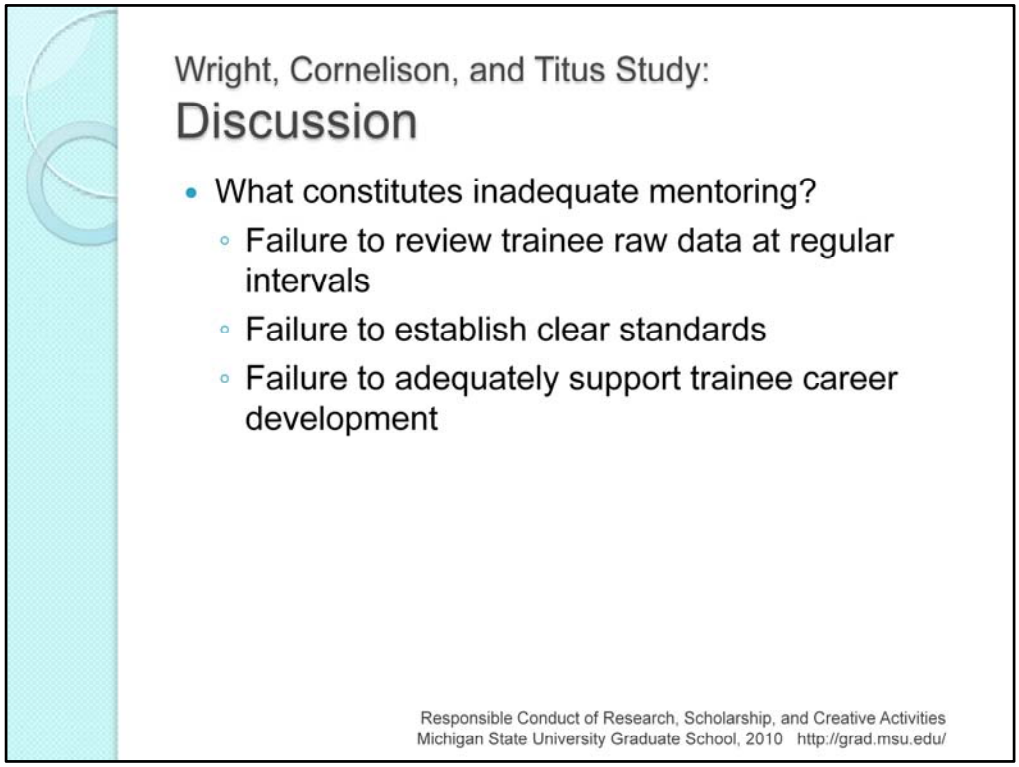
Discovery of Misconduct

f	Method of Discovery
35.7%	Fail to reproduce results
35.7%	Witnessed or became suspicious
9.5%	Data missing
7.1%	Fail to reproduce results & data missing
7.1%	Can't tell
4.8%	Not applicable

Wright, Cornelison, and Titus Study:

Findings

- Mentor failed to review trainee raw data at regular intervals
  - 52.3% yes … 31.8% no … 15.9% can't tell
- Mentor relied on others (or on trainee) to oversee research
  - 32.5% yes … 45.0% no … 22.5% can't tell
- Pressure on trainee contributed to problem
  - 38.1% internal pressure
  - 7.1% grant, dissertation, or publication deadline
  - 4.8% new job waiting
- Cultural differences – 53.9% foreign trained



Failure to review trainee raw data at regular intervals … because of

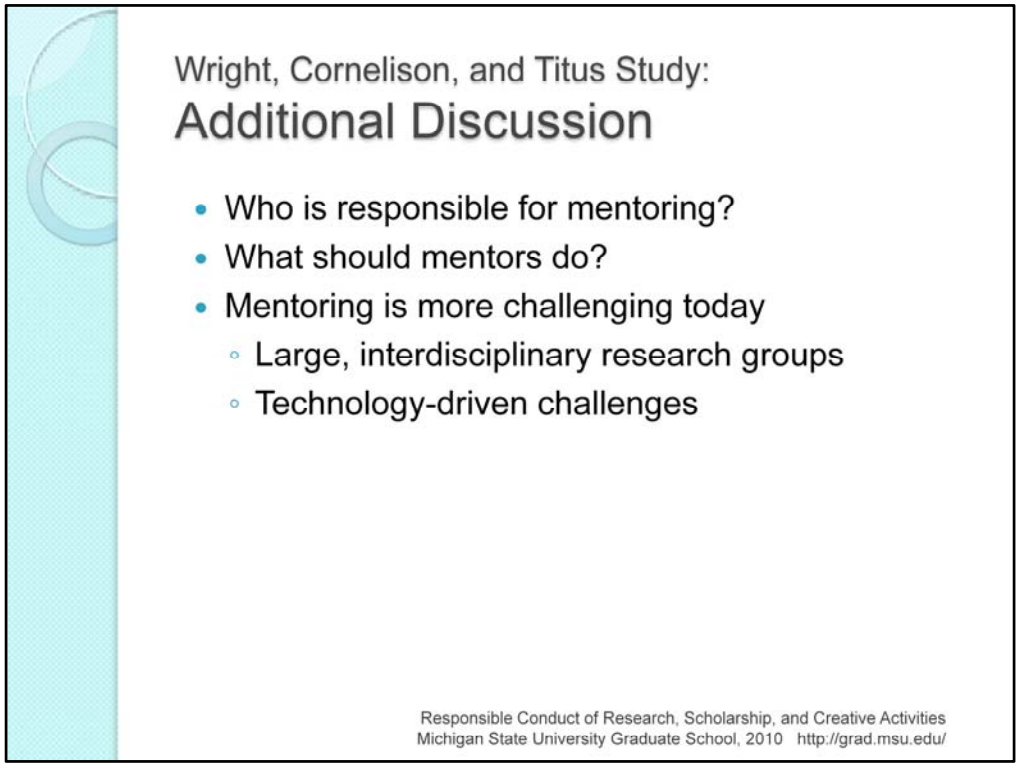
- Absentee mentor due to other pressures
- Mentor trust of trainee

Failure to establish clear standards

- Keeping lab notebooks
- Managing and retaining data
- Authorship

Failure to adequately support trainee career development

- Unsupportive work environment for trainees
- Undue pressure to produce results quickly
- Unreasonable expectations as to productivity



Who is responsible for mentoring? … advisor, dissertation director, lab director

What should mentors do?

- Teach research methods
- Help select research topics
- Model rigorous research procedures
- Discuss authorship expectations
- Establish group/lab standards for data management
- Provide guidance on preparing grant applications and manuscripts
- Regular discussion and retraining

Mentoring is more challenging today

- Large, interdisciplinary research groups
    - Mentor may not know all aspects of science & must rely on others
    - Mentor may need to “farm out” parts of project that s/he cannot personally oversee
- Technology-driven challenges
    - Computer-stored research data and related technologies may lessen emphasis on lab notebooks
    - Easier to fabricate and falsify
    - Computer-generated data/summaries often substituted for raw data in discussions

Mentoring in Your Situation

- What are best practices for mentors and trainees in your situation?
- Trainees and mentors should share and discuss their ideas to make certain that everyone shares the same expectations
- Of course, not all issues are negotiable – MSU, state, and federal policies may take precedence over trainee and mentor preferences

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Michigan State University Graduate School, 2010 http://grad.msu.edu/

Sources

Publications

- *Guidelines for graduate student advising and mentoring relationships*. (2004, Spring). *Research Integrity, 7(2),* http://grad.msu.edu/publications/docs/studentadvising.pdf
- Committee on Science, Engineering, and Public Policy. (1997). *Adviser, teacher, role model, friend: On being a mentor to students in science and engineering*. Washington D.C.: National Academy Press, http://www.nap.edu/openbook.php?record_id=5789

Sources, *continued*

Resources

- Klomparens, K., Beck, J., Brockman, J. , & Nunez, T. (2008). *Setting expectations and resolving conflicts in graduate education.* Washington, D.C.: Council of Graduate Schools Publications. (Project information also available at http://grad.msu.edu/conflictresolution)
- MSU Graduate School. *PREP (Planning, Resilience, Engagement, Professionalism)*. http://grad.msu.edu/prep/
- Association of American Medical Colleges. (2008). *Compact Between Biomedical Graduate Students and Their Research Advisors*. http://grad.msu.edu/ric/docs/AAMCCompact.pdf

Sources, *continued*

Offices

- MSU Ombudsman
  http://www.msu.edu/unit/ombud/
- MSU Graduate School
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Policies

- *Graduate Student Rights and Responsibilities*
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