

Graduate Students Mentoring Undergraduate Students

Opportunities, Expectations and
Strategies

SURF Summer Mentor Workshop
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Objectives for Workshop

- SURF Program's expectations of students
- Support your success as a mentor
- *Identify your needs and strategies*
- *Start developing a plan of action*



Initial Reflection on Mentor Role

Initial Reflection Sheet

ACTIVITY: Take two minutes to bullet main thoughts to questions on Reflection sheets -

- ***What are your goals for being a mentor?***
- What are your goals for your student?
- What will your student need to achieve this goal?
- What are the major milestones you would define for your undergraduate student?
- ***What questions and concerns do you have about mentoring your student this summer?***



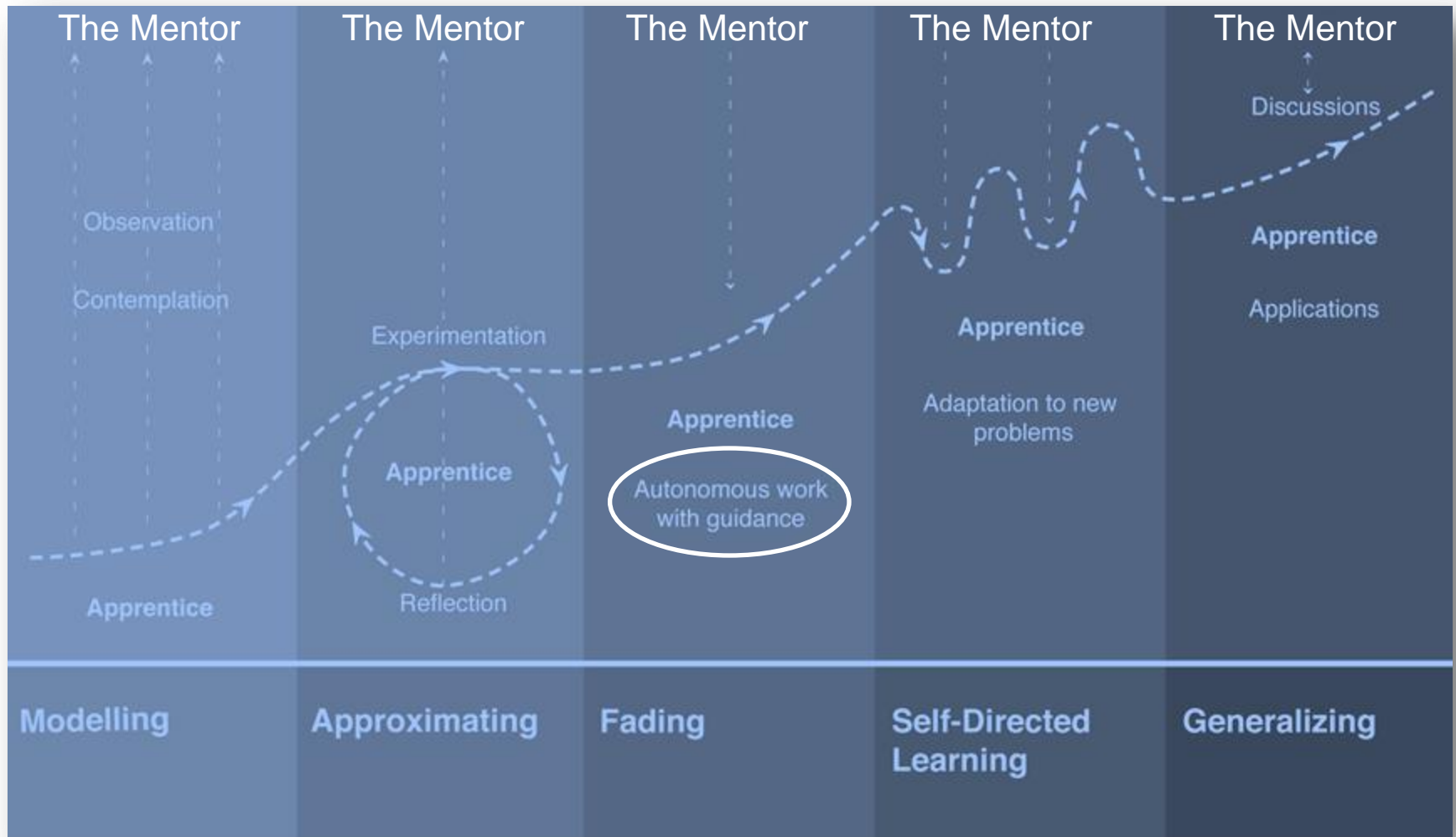
DISCUSSION: Share with a colleague

- Meet several people near you
- Introduce yourself, background and goals for being a mentor
- Share with each other your initial reflections
 - What are your common goals?
 - What are your major concerns about being a mentor?

Possible Goals

- SURF Goals
 - Provide a high quality learning experience for undergraduate program
 - Support mentors in achieving this goal
- Mentor goals
 - Provide a high quality research experience for undergraduate students
 - Develop my potential as a mentor now and for the future
 - Leadership
 - Project management
 - Professional development

Growth as an *apprentice*



Novice

Apprentice

Collaborator

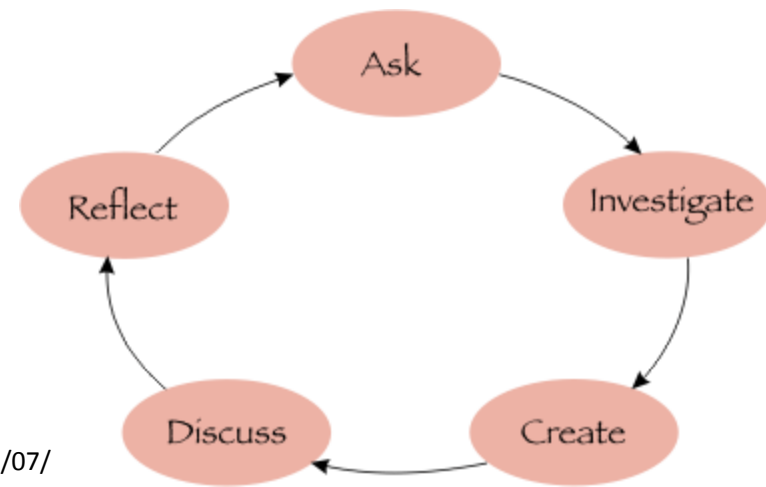
Colleague

Setting Goals and Expectations

Conducting Research in lab and the profession

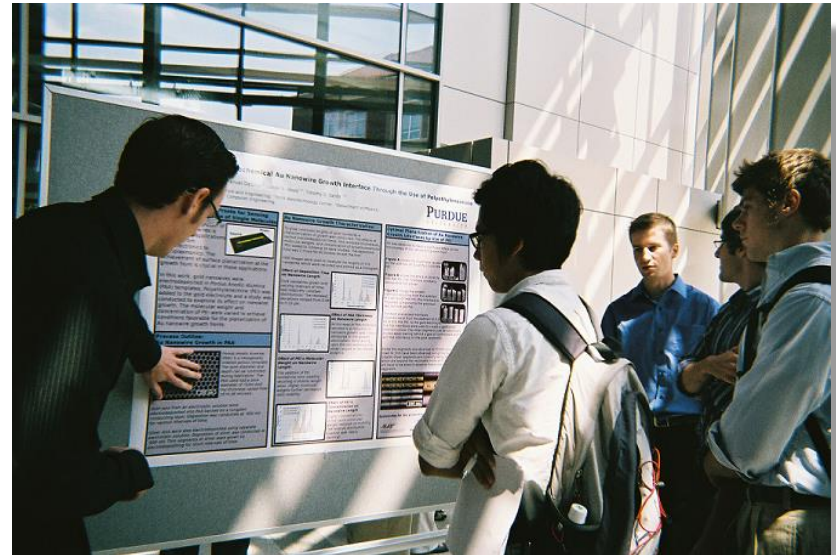
- Make research process transparent.
 - On day one provide a history of the project
- Share a research model with the student
 - A common model includes...
 - Generating and asking effective questions
 - Learning necessary content knowledge
 - Designing experiments
 - Analyzing/synthesizing results
 - Communicating results to convince with evidence

Where does the student's summer work fit in the lab's research and process?



Major Deliverable

- A confident young researcher capable of communicating success from their summer project.



Role of mentor involves...

- *Setting goals and meeting expectations*
 - *Develop a Plan of Action*
 - *Develop measures of progress and success*
- *Evaluating progress*
- *Establishing a good relationship*
- *Learning to communicate*
- *Identifying & resolving challenges*



Summary by Jonathan Beever, GA for Professional Development
Purdue University

Setting goals and expectations

Developing a plan

- Work with the PI and discuss...
 - expectations for project and mentoring
 - Plan project goals and milestones
 - Selected readings
- Work with student to identify goals for summer
 - Students expectations and goals
 - SURF worksheet for the student
 - Time line software



Initial Steps: Establishing rapport

Getting to know one another

- Students will have needs and expectations
 - What are their goals for the summer?
 - What are their long term goals?
 - What do they see as steps toward their long term goals?
 - What are their strengths they bring to the lab?
 - What are their weaknesses they would like to improve?

TIP: These questions can be a great discussion starters on day 1?



Planning Exercise

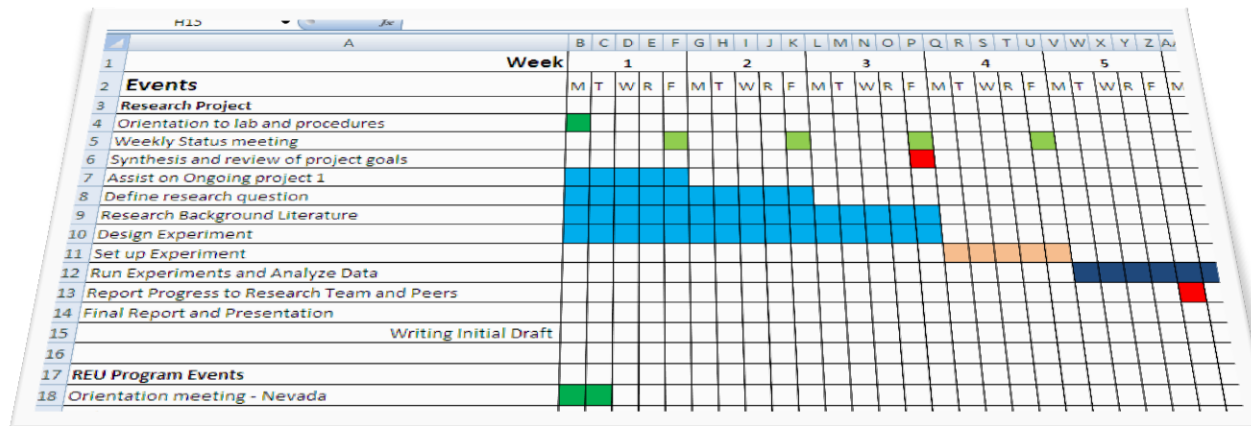
- The weekly goals for the SURF program are to enrich students' summer experience (professional development).
- [TIP] Take a few minutes to identify key milestones for students to meet your desired goals. Align with Assignment Timeline in syllabus of SURF program

SURF Goal Worksheet	
Summer Goals	<p>SURF Goals/expectations of Students:</p> <ul style="list-style-type: none"> • Provide me a hands-on research experience, • Expose me to the research process and tools used by professional researchers • Increase my proficiencies in research communication • Help me navigate towards research careers <p>IDENTIFIED IN INITIAL REFLECTION ACTIVITY</p>
Week 1	<ul style="list-style-type: none"> • Meet with my faculty mentor and graduate student mentor • Determine my work schedule, goals and expectations • Understand how to be safe in the lab

Planning

Generate a timeline

- A Gantt chart lists major milestones and sub activities to meet those milestones.
 - Use SURF_TimeManagementSheet.xls as a template



TIP – having these explicit records will make weekly meeting easier to run.

Setting goals and expectations

Orienting student to the research experience

- Work with student to identify goals for summer
- Share your goals and expectations for student
 - Lab norms, policies and procedures
 - Workflow
 - Work expectations



Initial Steps: Establishing rapport

Your expectations and lab norms

- Introduce student to the lab, people and process
 - **What are the rules?**
 - **When does the research team meet?**
 - **How will student participate in these meetings?**
 - **Do they do anything outside the lab together?**
 - **Where are the resources they will need?**



Initial Steps: Establishing rapport

Your expectations and lab norms

- Expect professionalism
- Establish expectation of time at lab
- Recommend appropriate attire
- Cell phones off and personal calls on break
- Respect others experiments



Initial Steps: Establishing rapport

Establish a Code of Cooperation

- Once you and your student are clear on goals and expectations
- Agree on responsibilities each accept
- Agree on consequences when responsibilities are not met
- Document this agreement



Develop a Plan of Action

Develop a cohesive research team

- Plan on regular meetings
 - Day one – goals, expectations, and initial road map outlining a plan of action
 - Daily meetings – Quick check-in
 - Plan for the day – progress, issues, and goals for the day
 - Possibly use a Strategy board – List of specific short term goals (if high structure is required)
 - Weekly meeting - Status update
 - Reflection on project plan
 - On track?
 - Identify problems with Project?
 - Issues with work flow?
 - Concerns as a research team?
 - Troubleshoot and refine as needed



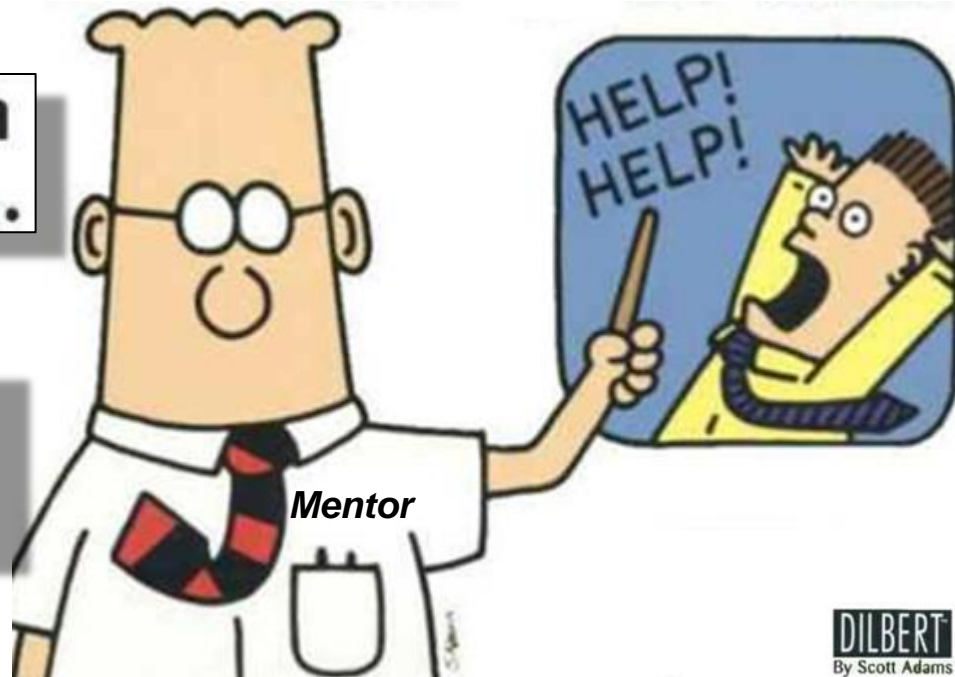
Planning for gaps in the action

Identify activities for self learning

- Plan extra activities for the students to do during down time. For example,
 - Evaluate simulations
 - Read and summarize papers
 - Learn how to use equipment or software

**Our Disaster Recovery Plan
Goes Something Like This...**

Students can have many parallel goals and outcomes in addition to their primary research goals.



Other Examples

for ongoing professional development beyond research project

- Help students pursue professional development activities students from their list of goals
- Identify tools you want them to learn
- Practice lab technique by replicating prior experiments
- Help with your research
- Review and critique prior research posters
- Review background literature

Summary

Role of mentor involves...

- *Setting goals and meeting expectations*
- *Establishing a good relationship*
- *Learning to communicate*
- *Evaluating progress*
 - *Regular meetings*
 - *Review time line and revise plan*
- *Identifying & resolving challenges*
 - *Shared expectations will help identify conflicts*
 - *Know students skill set*



WHAT MIGHT YOU FACE?

What might you face?

What would you do if...

...student does not show up for a few days and does not answer your emails

- Check that student is OK... Let the SURF office know of the lack of attendance and see if student has notified them of problems
- Establish expectation with students that work is to be done on site and regular check-in is critical to their project and their professionalism.
- Once contact with student is established, discuss their behavior with them to identify if problems or concerns they have with the project. This relates to establishing a good rapport with the student to make sure communication is open and expectations clear.

What might you face?

What would you do if...

...student spends a lot of time on Facebook, email, texting or You Tube

- Student may not have enough work in the cue, or is not sure how to best manage their time.
 - During the first week of their internship you should work with student to develop a plan and timeline of major milestones for the project. This will include doing research to better understand the background of their project.
 - Plan additional professional development activities for them to do during down times in their experiments.
 - In the first week discuss elements of professionalism and seizing this opportunity for their own personal development to learn more about doing research in your field.

What might you face?

What would you do...

...student brings his/her friends to the lab

- This could be a serious safety risk to the student and their friend. If your lab has rules about this, then it should be explicitly stated as part of the orientation to the lab.
- Students may be trying to recruit their friend into the field of research. Or be part of the experiment for the student. This could be a great opportunity for you as a mentor to meet with the students.

What might you face?

What would you do...

...student won't make the final deadline

– If a plan is established and carefully monitoring, then this situation could be avoided. Possible causes that could arise -

- Project is out of the scope of student's skill set.
 - May need to re-scope project
- Student may not have the self monitoring skills to manage the project
 - Student may need help managing research process.
 - Student may need multiple opportunities to express what they know and be coached on how to progress.
 - » Team meetings as a venue or weekly meetings

What might you face?

What would you do...

...student asks you out to the bar or on a date

– As a mentor you may be as new to the lab, and area, as the undergraduate, therefore you may be inclined to spend time with student outside of the lab

- Relationship with student should be professional. Coffee outside the lab to discuss research projects and being a researcher would be appropriate.
- Socializing with the larger cohort of undergraduates and Project leaders would be appropriate. Have fun on the soccer team.
- Socializing after hours over drinks would not be appropriate.



Any other words of wisdom from personal experiences as a mentor or mentee?

*Thank you for mentoring
an undergraduate
student this summer!*



Your thoughts help improve the next version of this workshop.
Please take a moment to complete the evaluation survey?



give feedback

Acknowledgements

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Contributors

- Sean Brophy
- Vicki Leavitt



References

Johnson, E. C. and Loui, M. C. (2009). Work in Progress: How do Students Benefit as Peer Leaders of Learning Teams? Proceedings of the 39th Frontiers in Education Conference.