

Developing Near Peer Mentors in STEM Disciplines

Enriching the Academic Experience of College
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Workshop outline

- Why did you choose this workshop?
- A “Community of Scholars” at Vanderbilt
- Mentor training – the Teaching Fellows workshop
- How might aspects of this work be applied to your own programs?



Why are you in this workshop?

- Take a moment to think about why you chose this workshop and what you hope to get out of it.
- What is one common question or issue in your group?



The HHMI Community of Scholars Program:

- 9 week summer research internship for freshmen
- A community of mentoring in teams comprised of freshman + near-peer undergrad + grad student/post doc + faculty
- A network of common research interests in participating labs, using multiple systems and approaches



Community of Scholars – Goals:

- Authentic open-ended undergraduate research experience - escape stratified undergraduate
- *Early* orientation of undergraduates into research culture and attitude
- *Re-orientation* of faculty, post-doc, and grad student beliefs about the synergy of research and education
- Model portable to other research areas

Community of Scholars – Components:

- Teaching Fellows Workshop
- Early Summer Retreat
 - Icebreakers/Lab research introductions
- Weekly Journal Club
- End of the summer Symposium
 - Poster Session
 - Oral presentation of summer work



A Personal Testimonial



Comments from Junior Mentors (Near Peers):

“I learned how much I actually know. Before the program, I was an undergrad at the lab, and mostly asked questions myself. Now, I was in a position to give answers. This made me realize how much applied and theoretical biology I have learned since I came to college.”

“I...have a deeper/better knowledge of what our project is due to teaching it.”

Comments from Senior Mentors:

“The intern makes me explain each step, each solution, and why we are using it, so I really have to think about the things I have taken for granted.”

“I had to get a better understanding of theory, read some papers and even some technical info in order to be able to explain it to the interns.”

“I definitely learned a lot about ‘managing’ a small research group. I think I got a better idea of what [faculty] go through, and what it might be like to lead my own lab.”

The Center for Teaching's role in the Community of Scholars:

- Program assessment
 - Written self-assessment
 - Intern drawings
 - SURE survey (Lopatto)
- Mentor training and support
 - Teaching Fellows Workshop
 - Regular meetings with interns and mentors

The Teaching Fellows Workshop:

A 2-day mentoring workshop for ~25 participants (including faculty, post-docs, grad students and undergrad students), prior to the start of the summer research.

http://www.vanderbilt.edu/cft/hhmi/hhmi_main.htm


Teaching Fellows Workshop:

- **Session 1** – Emphasizing the difference between novice and expert learners
- **Session 2** – An introduction to project design
- **Session 3** – Assessment, feedback and mistakes
- **Session 4** – Learning in community and more project design

Juggling and the science of learning:

- Divide group into teams of 3-4
- 1 team member (the juggler) leaves the room, other team members (the teachers) remain
- After about 5-minutes of strategizing, jugglers join the teachers to learn how to juggle
- About 10-minutes of instruction
- Juggling demonstrations and debrief

Why juggling?

- Highlights the novice-expert continuum
 - Practicing assessment and feedback
 - Different approaches people take to solve a problem
 - A physical, fun and tactile activity
 - Variations in skill and ability
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Project design:

- What do we mean by project design?
- Why project design?
 - Important and difficult
 - There are no one size fits all projects
 - Utilize expertise in the room
 - An opportunity to apply cognitive science to something concrete.

Adaptations to the Teaching Fellows Workshop:

- Broken it into 3 pieces, one for senior mentors, one for junior mentors and one for both groups.
- Condensed key components into a 5-hour workshop.

Your own project design:

- Individually, think about near-peer mentoring at your own institution.
 - What type of program would you like to have in place a year from now?
 - Who does your program target?
 - What are the goals of your program?
- How might a mentoring program like the Teaching Fellows workshop help you reach your goals?

Your own project design:

Share your project ideas with other members of your group. As you hear about other projects, ask questions and make suggestions.

Conclusions:

- The “Community of Scholars” provides a successful model for undergraduate research programs in STEM
- The Teaching Fellows Mentoring Workshop is effective at preparing near-peer mentors (and others) for their mentoring roles in undergraduate research programs.

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